

United States Congress, Committee on
on Environment and Public Works, Subcom
on Resource Protection

ENDANGERED SPECIES ACT OVERSIGHT

HEARINGS
BEFORE THE
SUBCOMMITTEE ON RESOURCE PROTECTION
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
NINETY-FIFTH CONGRESS
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ENDANGERED SPECIES ACT OVERSIGHT

WEDNESDAY, JULY 20, 1977

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON RESOURCE PROTECTION,
Washington, D.C.

The subcommittee met at 10:20 a.m., in room 4200 Dirksen Senate Office Building, Hon. John C. Culver (chairman of the subcommittee) presiding.

Present: Senators Culver and McClure.

OPENING STATEMENT OF HON. JOHN C. CULVER, U.S. SENATOR FROM THE STATE OF IOWA

Senator CULVER. The subcommittee will come to order.

I want to take this opportunity to welcome all of you to this series of hearings by the Senate Subcommittee on Resource Protection regarding the implementation of the Endangered Species Act of 1973. This morning's hearing will be the first of four to review the progress as well as the problems of the Endangered Species Act, which authorizes a landmark national program for the conservation of endangered or threatened species of fish, wildlife, and plants.

As you know, Congress enacted this statute in an effort to reverse the accelerating rate at which species are disappearing from our environment. According to a 1974 report by the International Union for the Conservation of Nature, the current rate of extinction of wildlife is one species annually, compared with an average rate of roughly one species every 10 years from 1600 to 1950, and with a rate of one every 1,000 years during prehistoric times. Many recent forms of life, such as the passenger pigeon and the audubon bighorn sheep provided Americans with many hours of enjoyment, but these species have now become extinct.

The underlying philosophy of the endangered species program is that we, as stewards of the world's natural and biological resources, do have a special responsibility to conserve and restore those species which are on the verge of extinction as a consequence of man's imprudence or neglect.

The Endangered Species Act provides the regulatory mechanism for achieving this goal by directing the Secretary of the Interior and, for marine species, the Secretary of Commerce, to identify endangered or threatened species and issue appropriate regulations for their protection.

Under this program, an endangered species is one in immediate danger of extinction, and a threatened species is one which is likely to become endangered in the near future. Once listed, a species is fully protected and cannot be taken or traded in interstate or foreign commerce except in accordance with permits issued by the Secretary.

Since the protection of habitat is an essential element of any effective program, the Secretary is authorized to acquire land for the conservation of affected species. Furthermore, Federal agencies are directed to assure that their actions do not adversely affect listed species or habitat which is critical to their existence.

In the 3½ years since we passed the act, significant progress has been made in the protection of our Nation's endangered species. Over 215 species or subspecies of fish and wildlife—including the American alligator, whooping crane, and leopard—have been listed for protection under this far-reaching program, and over 100 animals and 1,800 plant species have been proposed for listing.

In addition, recovery plans aimed at restoring populations of depleted species have been approved for 69 separate classifications, including such rare and beautiful forms as the California condor and the Mississippi sandhill crane.

As with any major Federal program, however, this progress has not been without controversy, and to a large extent we will examine during these hearings the problems encountered during the implementation of the act. Perhaps the most notable issue to be discussed is the possible conflict between section 7, which provides for the protection of critical habitat, and federally assisted projects.

The Tennessee Valley Authority has recently been enjoined by the U.S. Court of Appeals from completing the Tellico Dam which would destroy the critical habitat of the endangered snail darter. The subcommittee will review the Tellico Dam to determine whether or not a specific exemption for the project, as some have proposed, or other legislative action is necessary.

I should note that there are many possible conflicts between projects and officially listed species under the act which have been recently mentioned in the press. Many of these cases—and I think it is important to emphasize this—are still in the administrative or judicial process, and the appropriate agencies are negotiating project modifications or are determining whether a conflict actually exists.

Unfortunately, the recent publicity attending the *Tellico* case, which deserves examination in its own right, may obscure the larger successes of the endangered species program. The Interior Department, for instance, has resolved nearly 4,500 conflicts between projects and the act's provisions.

Furthermore, the President has recently ordered all Federal agencies to cooperate fully with the Secretaries of the Interior and Commerce in expediting the determination of the location of endangered species and critical habitats on Federal lands. This will help reduce any further irreconcilable conflicts.

We have an excellent group of witnesses this morning, and I am confident all pertinent issues will be thoroughly discussed. I believe we have a basic responsibility to protect those forms of wildlife, fish, and plants which are on the verge of extinction. They provide recreational

enjoyment and scientific and genetic benefits, and I am hopeful we can have a useful, realistic review of whether the Endangered Species Act is being implemented properly and is not unduly rigid in the protection it guarantees.

Senator Baker is unable to be here this morning. He has a great interest in this issue. The Senate will soon consider the Federal campaign financing legislation, and he must prepare for the debate this morning.

He wanted the Chair to express his regret over this conflict in his schedule to each of the witnesses who will testify this morning and especially to Congressmen Duncan and Beard with whom he shares a deep concern over the implications of the Endangered Species Act for the Tellico Dam.

He has a brief written statement to be inserted in the record at this point. Without objection, it is so ordered.

[The statement follows:]

Opening Statement of Senator Howard Baker
Hearings on The Endangered Species Act
July 20, 1977

Mr. Chairman, I am certainly glad that the Committee is taking this opportunity to examine the Endangered Species Act. From looking over the schedule of witnesses and the topics to be discussed, I believe the Committee will receive a diversity of viewpoints concerning those areas of the Act which seem to have strayed in their implementation from what I believe was Congress' original intent.

Mr. Chairman, as I have pointed out on numerous occasions, the concept of protecting and managing certain populations of endangered and threatened species is a good one and it ought to be retained. We are now realizing in the Endangered Species Act, as in other areas of environmental legislation, that the protection which we wish to provide must be tempered with reason--reason derived from examining and attempting to balance the importance of the entire range of interests involved in actions affected by these laws.

Mr. Chairman, I feel that the Committee ought to assure itself through these hearings that the Endangered Species Act will allow such a balancing of interests as part of its implementation.

In a broader context, what the Committee is seeking here, Mr. Chairman, is to establish guidelines for the stewardship and management of our natural resources, in this case our endangered and threatened wildlife resources. The very process of management requires discretion and flexibility to consider all relevant factors.

2.

In light of current and potential conflicts surrounding the implementation of the Endangered Species Act, it is apparent that the required flexibility is not currently available. In my opinion, if we are to afford proper protection to the diversity of species as well as protection to widely known species, we must seek through these hearings to determine a basis for assessment of the significance of these species and their habitat and to determine what tools are appropriate to the purpose.

I look forward to the testimony here today and in each of the three more days of hearings. I hope to learn the answers to some of these questions.

Senator CULVER. Finally, since the subcommittee this morning cannot meet after 12 noon, I would appreciate it if each witness would be kind enough to try to limit his oral testimony to 10 minutes, and we will, of course, make each written statement a part of the record. Senator McClure?

**OPENING STATEMENT OF HON. JAMES A. McCLURE, U.S. SENATOR
FROM THE STATE OF IDAHO**

Senator McCLURE. Very briefly, I am very mindful of the time constraints under which we work. I particularly appreciate this hearing because I think we are beginning to see the problems that may be inherent in the program which the Congress has thus far put in motion. It may well be that from these hearings, there will result either modifications in the program or modifications of the statute may be indicated.

Certainly, I share with my colleagues the desire to protect endangered species, but I am not certain that the bill, that the law as it now exists is not going to be used by people for their own purposes quite apart from that. If the law has gotten to the point where people can use it for other purposes, then we may have to take a look at whether or not the legitimate interests of the Congress, the legitimate interests of the people of this country are being subverted in the desire to accomplish something else, using this act as a tool, and I am not saying that as a conclusion of this Senator.

I am stating that only as a concern because I don't want to see the law tampered with in a way that it is going to dilute its effectiveness or the purpose for which it was passed. At the same time, neither do I want to see it made the weapon in the hands of some who would desire to use it for quite different purposes.

There are those who have expressed concern that the listing of the endangered species has been taken from the hands of those in which balance might be achieved and placed in the hands of those in which balance has no legitimate objective. These are things I hope we will look at at these hearings.

I share with the chairman the desire to get on with it. I will not belabor this issue any further, and I welcome my colleagues from the other body here this morning and the other witnesses on the list.

Senator CULVER. Thank you, very much, Senator McClure.

Congressman Bevill was to testify this morning, but he cannot be here. I ask unanimous consent his full statements be made a part of the record following the testimony of Congressman Duncan and Congressman Beard. (See p. 24.)

Congressman Duncan?

**STATEMENT OF HON. JOHN DUNCAN, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF TENNESSEE**

Mr. DUNCAN. Thank you, Mr. Chairman.

I appreciate the opportunity to appear before this committee to

offer my comments and observations concerning the impact of the Federal Endangered Species Act of 1973. I do so out of a sense of concern—concern that we are seeing this act applied to certain Federal projects in a manner that is not consistent with the intent of Congress when the act was drafted and passed into law.

Let me emphasize that I believe the Endangered Species Act was an important legislative measure. It was an effort to bring some sense of balance to our national decisionmaking concerning the protection of our environment and our national economic growth.

Unfortunately, recent events have convinced me that the act, as it has been interpreted by some courts, does not promote balanced decisionmaking. Indeed, it does not permit it. I do not believe that Congress intended for this legislation to afford any single-purpose interests a potential veto over virtually any federally funded or authorized project, at virtually any stage of construction.

May I digress from my written statement, Mr. Chairman? Last night I read the Endangered Species Act and the debate in the Senate on July 24, 1973, and on page 25689, the question was raised about a road that was proposed to be constructed in Kentucky. The question was raised by Senator Cook and Senator Tunney, who was managing the bill on the floor at that time, and he said, "I understand after the consultation process"—and the act does provide for consultation process—"took place, the Bureau of Public Roads or the Corps of Engineers would not be permitted from building such road if they deemed it necessary to do so."

On page 25690, Mr. Tunney also says—

As I read the language, there has to be a consultation. However, the Bureau of Public Roads or any other agency would have the final decision, would have the final decision as to whether such a road should be built, that is my interpretation of the legislation.

I think that was the intent of the entire act and it did not permit any agency to supersede another agency and that the TVA had the right to build the dam that I am particularly interested in, which is the Tellico Dam. I think it reflects the inflexible and unreasonable manner in which the Endangered Species Act is presently being interpreted.

Since 1967, the TVA has been constructing the Tellico Dam and Reservoir project on the Little Tennessee River in east Tennessee. It is more than 90 percent completed. The Tellico Dam is on the left. Forward, Loudon Dam is on the right side of the picture. It is more than 90 percent complete and more than \$100 million of the project's estimated \$116 million cost has been invested toward realization of the project's benefits.

In order to comply with the chairman's request, I would ask that my full statement become part of the record and also the pages from the Congressional Record that I have mentioned, pages 25689 and 25690, that that also be part of the record, which to me shows the intent of the Senate.

Senator CUTLER. Without objection, it is so ordered. (See p. 9.)

Mr. DUNCAN. May I state I sent a letter to every occupant in the two counties, Mr. Chairman, that touches the Tellico area, Loudon

County and Monroe County. We had from Loudon County, 864 people said they would like to see the dam completed, against 75; Monroe County, 713, for completion was 673, against was 40.

Then in my general questionnaire that went to all of the people in my district, in the other counties, total combined was 12,430 people said they would like to see the dam completed, against completion was 1,825.

I would ask unanimous consent that that become part of the record also.

Senator CULVER. Without objection, it is so ordered. (See p. 13.)

Mr. DUNCAN. May I say the opposition to the dam came up after the dam had started because I was here at the time that the House and the Senate approved the dam and to my knowledge, we only have two or three people who appeared in Washington to oppose it; but the opposition really came up after the dam had started.

May I say that they are sincere. It is sincere opposition. They are good people. They are not, as some have accused them of being, far-out people, but they are all dedicated people and good citizens of my district. They are entitled to be heard in this hearing.

I thank you, Mr. Chairman.

Senator CULVER. Thank you, very much, Congressman Duncan.

We will review all of the materials you provided us. We appreciate your being our leadoff witness this morning.

Mr. DUNCAN. May I also—I have a picture of a little fish here, if you haven't seen it.

Senator McCLURE. Congressman, is that in scale?

Mr. DUNCAN. I have a picture in scale.

Senator CULVER. It may be a suitable tie clasp for your next campaign.

Mr. DUNCAN. I have thought about having it, because they are all over the mountains in almost every stream, the snail darter, and I thought I might get an aquarium and put it in a fund raising dinner and charge admission because it is the most famous thing I suppose in Tennessee now, the snail darter.

[Congressman Duncan's prepared statement and the additional materials referred to follow:]

STATEMENT BY
THE HONORABLE JOHN J. DUNCAN
BEFORE THE
SUBCOMMITTEE ON RESOURCE PROTECTION,
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

Thank you, Mr. Chairman. I appreciate having the opportunity to appear before this distinguished committee to offer my comments and observations concerning the impact of the Federal Endangered Species Act of 1973. I do so out of a sense of concern--concern that we are seeing this act applied to certain Federal projects in a manner that is not consistent with the intent of Congress when the act was drafted and passed into law.

Let me emphasize that I believe the Endangered Species Act was an important legislative measure. It was an effort to bring some sense of balance to our national decision-making concerning the protection of our environment and our national economic growth. Unfortunately, recent events have convinced me that the act, as it has been interpreted by some courts, does not promote balanced decision-making. Indeed, it does not permit it. I do not believe that Congress intended for this legislation to afford any single-purpose interests a potential veto over virtually any Federally funded or authorized project, at virtually any stage of construction.

One example from my district graphically illustrates the inflexible and unreasonable manner in which the Endangered Species Act is presently being interpreted. Since 1967, the Tennessee Valley Authority has been constructing the Tellico Dam and Reservoir project on the Little Tennessee River in east Tennessee. The Tellico project is more than 90 percent complete and more than \$100 million of the project's estimated \$116 million cost has been invested toward realization of the project's benefits.

Those benefits include a substantial amount of flood control storage space to help protect downstream communities; the production of 200 million kilowatthours of electric energy in an average year; and the creation of a navigation channel which will open the area to commercial and industrial development.

I want to state here that I have a deep personal interest in seeing the Tellico project completed. I have followed the project since its inception and I have carefully listened to the arguments of both those who support the project and those who oppose it. And it is my conclusion that the Tellico project will significantly improve the quality of life particularly for the people in the area affected by the project.

Let me describe briefly the situation which exists in the counties which will be directly affected by the Tellico project. Industrial development has been slow, hampered by terrain that limits the availability of industrial sites and makes construction of transportation facilities very expensive. As a result, sufficient jobs have not been available for those persons seeking adequate employment opportunities, and what jobs are available have been generally low-wage, offering few opportunities for advancement. Between 1950 and 1970 nearly 20,000 people left the three counties because of lack of employment opportunities, and about three-fourths of these were under 30 years of age. Thus, the area's most valuable resource--its young people--is being drained by lack of opportunity.

I am convinced that the Tellico project will help the people of this area take their rightful place in the economic mainstream of American life. Tellico will extend commercial navigation some 30 miles up the Little Tennessee River to a relatively level area which will become one of the finest industrial sites in east Tennessee. By providing industrial sites with access to river transportation as well as improved rail and highway access, TVA estimates 4,000 basic industrial jobs and 2,600 trades and services jobs will be created along the reservoir over a 25-year development period.

I might add that the people who will be most directly affected by Tellico share my belief that the project will substantially improve their opportunities for a better way of life. I recently completed a series of town meetings in the counties immediately adjacent to the project. Almost without exception, the people speaking in favor of the project lived in

those counties. I also conducted a survey by mail which showed that people living in the three counties support completion of the Tellico project by nearly a 9 to 1 margin. In addition, the most recent session of the Tennessee General Assembly passed several joint resolutions calling for completion of the project, all by an overwhelming majority.

TVA, at the urging of the Congress through continued appropriations, has pushed completion of the Tellico project so that its benefits could be realized as promptly as possible. The dam has been ready for closure and use since January of this year. However, on January 31 the Sixth Circuit Court of Appeals ruled that TVA could not impound Tellico Reservoir because this action would modify the habitat of the snail darter, a newly discovered three-inch fish which was designated an endangered species by the Department of the Interior. This action was taken even though the fish was not discovered until the project was half completed and not listed as endangered until the project was three-quarters completed.

The committee should note that TVA has made a good faith effort to save the snail darter, and at the same time to complete the Tellico project for the benefit of man. More than 700 snail darters have been transplanted from the Little Tennessee River to the Hiwassee River. TVA biologists inform me that those fish have been doing well and have reproduced in two successive seasons. In fact, they believe, and I have no reason to doubt their judgment, that presently there may be more snail darters in the Hiwassee River than in the Little Tennessee. They further indicate that the snail darter population in the Little Tennessee is not doing so well because the dam, which has been in place for two years, has already blocked their migration path. They are hoping to transfer more fish to other streams in the area, if they can get the necessary permits from the Endangered Species Office.

Still, it is my understanding that under the Appeals Court's interpretation of the Endangered Species Act, even a successful transplant

would not affect the Court's decision to enjoin completion of the project so long as the fish's critical habitat remains the Little Tennessee River. The Court has ruled that once a determination has been made that a Federal project or a federally authorized or funded project would adversely affect an endangered or threatened species or its critical habitat, the project must automatically give way, regardless of the importance of the project, its stage of completion and the resulting loss of a public investment. Under this interpretation, there is no room for balanced or reasoned decision-making. Indeed, balance is not allowed.

Mr. Chairman, I do not believe such an inflexible and absolute prohibition was the intent of Congress when it passed the Endangered Species Act. We certainly need to incorporate sound conservation planning in all our programs. But the interpretation being given the Act does not permit consideration of the needs of man when weighing the needs of endangered species. The needs of endangered species always prevail.

It is for this reason that I and my colleague in the House, the Honorable Marilyn Lloyd of Tennessee, have introduced a bill which would exempt the Tellico project from the provisions of the Endangered Species Act. We have not taken this action lightly. We are aware of the concerns of some that passage of this legislation might somehow weaken the act. But we are convinced after weighing the factors involved that this action will allow us to help meet the social and economic needs of the people of a three-county area of east Tennessee without compromising the continued existence of the snail darter.

Mr. Chairman, I thank you for your time and attention to this statement. I would now close with one final observation. The dilemma which exists between the Tellico project and the Endangered Species Act will not be unique as long as the act continues to be interpreted in this manner. Indeed, it has already had ramifications for other projects throughout the country. For this reason, I believe that a close examination by this committee concerning the present and potential impact of the Endangered Species Act comes at a critical time as we attempt to reach decisions which accommodate both man and the life forms with which he must exist.

Thank you.

Results of questionnaire on Tellico Project mailed by Congressman Duncan to every resident of Loudon and Monroe Counties, Tennessee. (Sample attached)

	Total responses	For completion	Against
LOUDON	939	864	75
MONROE	713	673	40

Results from Tellico question included on annual legislative questionnaire. (Sample attached)

	For completion	Against completion
Blount County	1821	231
Campbell County	468	21
Claiborne County	275	19
Knox County	7890	1343
Loudon County	787	81
McMinn County	522	59
Monroe County	526	32
Scott County	143	22
Union County	119	17
Totals	12,430	1,825

[Congressional Record—Senate, July 24, 1973]

ENDANGERED SPECIES ACT OF 1973

The Senate continued with the consideration of the bill (S. 1983) to provide for the conservation, protection, and propagation of species or subspecies of fish and wildlife that are threatened with extinction or likely within the foreseeable future to become threatened with extinction, and for other purposes.

Mr. COOK. Mr. President, I send to the desk an amendment and ask for its immediate consideration.

The PRESIDING OFFICER. The clerk will report the amendment.

The legislative clerk read as follows:

On page 43, line 11, insert the following: strike the word "such," and insert the word "any."

Mr. COOK. Mr. President, an earlier version of this bill provided that the appropriate Secretary review other programs administered by him and utilize such programs in furtherance of the purpose of the act. The bill provided further that all other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authority in furtherance of the purpose of the act by carrying out programs for the protection of endangered species or subspecies of fish and wildlife by taking such action necessary to insure that actions authorized, funded or carried out by them do not jeopardize the continued existence of endangered species.

I am in complete agreement with this provision as stated, but it did not go far enough as it did not protect the habitat of the endangered species. I therefore recommended to the committee, and I am pleased that the bill we are now considering includes a provision which would prohibit the destruction or modification of the critical habitat of such species.

Mr. President, the only purpose of my amendment to change the word "such" to "any" is to make the provision all inclusive. I think we should be concerned with the habitat of all wildlife instead of considering that of endangered species.

We have a situation in my State that falls in this category.

Mr. TUNNEY. Mr. President, I ask the Senator whether the effect of his amendment would be, first, if the Bureau of Public Roads wanted to build a highway through an area of the country, as it deemed necessary for the citizens of the Nation, if it would be prevented from doing so by changing the word "such" to "any."

Mr. COOK. Mr. President, I would be less than fair with the Senator if I would say otherwise to him. It is conceivable that this could happen. It is conceivable also that never would happen.

The only point I am making is that they would have to have consultation with the respective agency. The point I have in mind is that we have the Pioneer Weapons Hunting Area in the State of Kentucky. It is the only one of its kind in the United States. There is no other. It is a tremendous nesting area for wild turkeys.

I might suggest that the Corps of Engineers decided that it would build a road right through the middle of this area. We have tried our best to have them change the route of the road. They had alternate routes, but they decided, despite their alternative routes, that this is where they would build the road.

This language means that they have to consult with the respective agencies under this bill, and they have to consult with the respective State agencies in order to work out this problem. That is exactly what it means. And I would be less than candid if I did not explain that to the Senator.

Mr. TUNNEY. Mr. President, as I understand it, after the consultation process took place, the Bureau of Public Roads, or the Corps of Engineers, would not be prohibited from building such a road if they deemed it necessary to do so.

Mr. COOK. The point is that they would then be doing it after consultation with the respective agencies, rather than making that decision on their own.

Mr. TUNNEY. But they would have the final decision after consultation.

Mr. COOK. The Senator has put me in a rather bad light. Under the terms of this, it would have to be under an agreement worked out with the respective agencies.

Mr. TUNNEY. Mr. President, as I understand the legislation, just reading the language:

All other departments, agencies, and instrumentalities of the Federal Government shall, in consultation and with the assistance of the Secretary—

(b) take such action as is necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of any endangered or threatened species, or result in the destruction or modification of any habitat of such species which is determined by the Secretary, after consultation to the extent appropriate and necessary with affected States, to be a critical habitat of such species.

So, as I read the language, there has to be consultation. However, the Bureau of Public Roads or any other agency would have the final decision as to whether such a road should be built. That is my interpretation of the legislation at any rate.

Mr. Cook. Mr. President, we find ourselves in a position where we are debating or really talking about endangered or threatened species, and that is where the consequence of this amendment lies.

I might suggest to the Senator from California that if the Senator feels this might be the burden of this language, I do have another amendment which would designate this area.

Mr. Cook. Mr. President, I ask unanimous consent that as to this amendment the rule of germaneness be waived.

Mr. ROBERT C. BYRD. Mr. President, the Senator does not have to ask unanimous consent as long as no Senator makes a point of order.

The PRESIDING OFFICER. The Senator from West Virginia is correct.

Mr. Cook. Mr. President, I thank the Senator from West Virginia.

Mr. President, I thank the Senator from California, because this now gives me an opportunity to clarify the situation.

Mr. President, I believe that S. 1983 as written will contribute to the guarantee we all want that succeeding generations will enjoy some measure of nature and wildlife as we have known it. However, I would like further assurance for the people of Kentucky.

Mr. President, in my State of Kentucky, we have located at Cave Run, in Daniel Boone National Forest, a Pioneer Weapons Hunting Area. Within this area are various species of wild turkeys, white-tailed deer, red and grey foxes, ruffed grouse, dove, and quail. During the past year there have been attempts made to bisect this Pioneer Weapons Hunting Area by construction of a road through the normal nesting and grazing area of these species. To do so would most assuredly destroy or severely endanger the species. The tragedy is in the fact that a feasible alternate route is available that would generally skirt the Pioneer Weapons Hunting Area. We cannot permit such inconsiderate and ill-conceived projects to continue.

The amendment would not add a new section to the bill which would designate under section 3(b) of the Wilderness Act of the United States Code, that this area be designated as a wilderness area. Therefore, having such a designation, it is in the unique position of not being subject to this kind of tampering.

If we can get this accomplished, we will solve a problem and this has been going on for more than 2 years on my part.

We no longer have to fear that an agency can decide to arbitrarily build a major highway which bisects this area. I assure my colleagues that this would be of significance to the Pioneer Weapons Hunting Area located in the Daniel Boone National Forest in Kentucky.

Mr. TUNNEY. Mr. President, I have had an opportunity to consult with the Senator from Kentucky on his amendment. It is a good amendment. It is specific. It clearly focuses on the problem. I am prepared to accept the amendment.

I yield back the remainder of my time.

Mr. TUNNEY. Mr. President, I would prefer it if the Senator would withdraw his pending amendment. I know what the Senator's next amendment is. And I support that amendment. I recognize that the Senator has to secure unanimous consent to make the amendment germane to the bill. However, I am prepared to accept the amendment. I have looked it over.

I do not think there is any desire on the part of any Senator on the floor to object to a unanimous-consent request that the amendment be considered.

Mr. President, I am hesitant, as the floor manager of the bill, to accept the amendment. This does broaden considerably the impact of the language which requires consultations with the respective agencies and the Department and the Secretary of Interior. It moves it from endangered species to any species of animal. And with that extension of the language on the floor and without any hearings, I believe it is something that I would not be able to accept.

Mr. COOK. Mr. President, I withdraw my amendment.

The PRESIDING OFFICER. The amendment is withdrawn.

Mr. COOK. Mr. President, I send to the desk an amendment which is the same as S. 1532 which I introduced earlier this year and ask that it be immediately considered.

The PRESIDING OFFICER. The clerk will report the amendment.

The legislative clerk proceeded to state the amendment.

Mr. COOK. Mr. President, I ask unanimous consent that further reading of the amendment be dispensed with.

The PRESIDING OFFICER. Without objection, it is so ordered.

The amendment reads as follows:

At the end of the bill, add the following:

That, in accordance with section 3(b) of the Wilderness Act (78 Stat. 892; 16 U.S.C. 1132(b)), those lands in the Daniel Boone National Forest, Kentucky, comprising the Pioneer Weapons Hunting Area and consisting of approximately seven thousand three hundred acres, are hereby designated as wilderness.

SEC. 2. As soon as practicable after this Act takes effect, a map of the wilderness area and a description of its boundaries shall be filed with the Interior and Insular Affairs Committee of the United States Senate and House of Representatives and such map and description shall have the same force and effect as if included in this Act: *Provided, however,* That correction of clerical and typographical errors in such legal description and map may be made. A copy of such map and description shall be on file and available for public inspection in the offices of the Chief, Forest Service, United States Department of Agriculture.

SEC. 3. The wilderness area designated by this Act shall be known as the Cave Run Wilderness and shall be administered by the Secretary of Agriculture in accordance with the provisions of the Wilderness Act governing areas designated by that Act as wilderness areas, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this Act.

SEC. 4. Nothing in this Act or the Wilderness Act shall be construed as precluding the construction of a Zilpo recreation site access road generally on a route extending northward from Forest Development Road Numbered 129 generally skirting the eastern boundary of the Pioneer Weapons Hunting Area, or as affecting or modifying in any manner the 1962 Cooperative Management Plan between the Department of Fish and Wildlife Resources of the State of Kentucky and the Department of Agriculture involving the designation of the Pioneer Weapons Hunting Area within the Daniel Boone National Forest.

**STATEMENT OF HON. ROBIN L. BEARD, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF TENNESSEE**

Mr. BEARD. My statement is very brief, Mr. Chairman.

Thank you, Mr. Chairman.

I do want to congratulate you and the other members of this subcommittee for undertaking the first major review of the Endangered Species Act. Such a review is vitally necessary, and I appreciate the opportunity to share my views with you on this subject. I know your agenda is crowded, and I will try to keep my statement as brief as possible.

The Endangered Species Act passed the Congress in 1973. It was important legislation which embodied principles we cannot allow to be undermined. The principal objective of this act was to insure that we would never again unthinkingly cause the extinction of unique plant and animal life. That principle must be protected.

However, as with so many pieces of legislation which after enactment are exposed to the real test of implementation, certain problems arise. One particular problem that has been brought home to me rather forcefully is the apparent lack of any flexibility in the current law. There appears to be no leeway whatsoever to allow valuable public projects to go forward if there is a risk that any endangered species might be adversely affected.

The consequence of this inflexibility is that multimillion-dollar projects are forced into a "go or no go" situation, without regard to any other consideration. Compounding the problem is the fact that the law is not only applied to projects on the drawing board, but also to those that are substantially underway and even those that are virtually complete. I find the rigidity of that universal application of the law simply unreasonable.

Certainly, conflicts of the type we have experienced in the Tellico Dam project are not restricted to Tennessee. The impact of the Tellico Dam decision will be felt all across the country. Indeed, a valuable dam project in my own district is now in jeopardy as a result of that decision.

Such conflicts place an unnecessary strain on the Endangered Species Act, and I cannot help but think that agitation to severely revise the act will become more pronounced as these conflicts arise with more frequency. We can avoid this, but in order to do so, we must find some rational accommodation as soon as possible. To that end, I have introduced a piece of legislation that, in my judgment, offers a reasonable way out of this dilemma.

The objective of my legislation is to try to establish some rational guidelines within the act which will allow some certain public projects to continue. These projects would have to be major public undertakings, where construction began prior to any legal requirement to insure the safety of a specific endangered specie.

However, projects to be exempt would be required to assure that before going forward every possible modification would be undertaken to avoid damage to a listed specie. This objective would be accomplished by affording the Secretary of the Interior additional discretionary authority, under section 7 of the act.

Thus, the bill attempts to provide some very carefully limited flexibility to the act without disturbing the act's underlying principles. I do not propose that this is the only, or even the best, alternative. But I do suggest that debate on the subject is necessary, and I hope that this piece of legislation will act as a vehicle around which that debate might occur.

I would like to submit for the record a copy of the bill that I have introduced on the House side for your perusal.

Senator CULVER. Without objection, it is so ordered.

[The bill referred to follows:]

95TH CONGRESS
1ST SESSION

H. R. 4167

IN THE HOUSE OF REPRESENTATIVES

MARCH 1, 1977

Mr. BEARD of Tennessee introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

A BILL

To amend the Endangered Species Act of 1973 in order to clarify the provisions of the Act regarding Federal agency cooperation.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That section 7 of the Endangered Species Act of 1973 (16
4 U.S.C. 1536) is amended to read as follows:

5 "INTERAGENCY COOPERATION

6 "SEC. 7. (a) The Secretary shall review other programs
7 administered by him and utilize such programs in further-
8 ance of the purposes of this Act.

9 "(b) All other Federal departments and agencies shall,
10 in consultation with, and with the assistance of the Secre-

I

1 tary, utilize their authorities in furtherance of the purposes
2 of this Act by carrying out programs for the conservation
3 of endangered species and threatened species listed pursuant
4 to section 4 of this Act and by taking such action as is
5 necessary to insure that actions authorized, funded, or carried
6 out by them do not jeopardize the continued existence of
7 such endangered species and threatened species or result in
8 the destruction or modification of habitat of such species
9 which is determined by the Secretary, after consultation as
10 is appropriate with the affected States, to be critical.

11 “(c) (1) In applying subsection (b) of this section,
12 no Federal public works project shall, if such project is on,
13 or directly affects, the navigable waters of the United States,
14 be deemed—

15 “(A) to jeopardize the continued existence of an
16 endangered species or threatened species; or

17 “(B) to result in the destruction or modification of
18 habitat of such species which is determined by the Sec-
19 retary to be critical

20 if the construction, reconstruction, or operation of the Fed-
21 eral public works project was commenced before the date
22 on which the notice required under section 4(b) (1) (A)
23 of this Act regarding such species was published in the Fed-
24 eral Register.

25 “(2) With respect to any Federal public works project

1 to which paragraph (1) of this subsection applies, the
2 Secretary—

3 “(A) may, after consultation with the Federal de-
4 partment or agency concerned, and with the affected
5 States, by regulation prescribe such requirements re-
6 garding the construction, reconstruction, or operation of
7 such project as may be necessary and appropriate to
8 minimize the adverse effects, if any, which such con-
9 struction, reconstruction, or operation may have on
10 any endangered species or threatened species, and on
11 any critical habitat of such species, within the geographic
12 area directly affected by such project; and

13 “(B) shall implement such protective measures
14 (including, but not limited to, transplantation) with re-
15 spect to the endangered species and threatened species
16 in such area as he deems necessary and appropriate.

17 “(3) The harassment, harm, killing, or wounding of
18 any endangered species or threatened species within the
19 geographical area directly affected by any Federal public
20 works project to which paragraph (1) of this subsection ap-
21 plies shall, if such harassment, harm, killing, or wounding
22 is—

23 “(A) directly attributable to the construction, re-
24 construction, or operation of such project; and

25 “(B) not in violation of any requirement imposed

1 by the Secretary pursuant to paragraph (2) (A) of this
2 subsection

3 not be deemed to be a taking of any endangered species
4 within the meaning of section 9 (a) (1) of this Act or the
5 taking of any threatened species if a prohibition against the
6 taking thereof is imposed by regulation issued under section
7 4 (d) of this Act.

8 “(4) For purposes of this subsection, the term “Federal
9 public works project” includes, but is not limited to, any
10 public works project carried out by any corporation estab-
11 lished under Federal law.”.

12 SEC. 2. Section 7 (c) of the Endangered Species Act of
13 1973 (as added by the first section of this Act) shall apply
14 with respect to Federal public works projects described in
15 such section the construction of which commenced on or
16 after January 1, 1967.

Senator McCLURE. I just have one question of Congressman Beard. Do I understand that you do not propose an economic test with regard to whether or not the endangered species will be protected.

Mr. BEARD. Actually, let me first of all state that this piece of legislation that I have introduced is not a perfect piece of legislation. It is one strictly to act as a vehicle to hopefully generate conversations and debate.

As far as the economic test, I would think that in the Senate's wisdom or the House's wisdom, that this would be a viable consideration, that these situations would be considered. As far as what all would be involved, as to substantiate valid economic factors, I think it is subject for debate and for future consideration; but at this time, I would say that would be a viable consideration.

Senator McCLURE. Is it your intention that the legislation be confined—your thought is ultimately legislation would be confined to the situation you have outlined in your statement where a large public project is already underway and then the issue is raised for the first time?

Mr. BEARD. This is what my legislation deals with specifically on this particular thing.

Senator McCLURE. It wouldn't be your intention that the Endangered Species Act be modified to provide for a balancing in all cases, but only in those cases?

Mr. BEARD. I personally think it is going to have to be balanced in all cases. I see and I feel the environmentalists are going to realize also that you are going to find a radical departure from the concept of the purpose of the Endangered Species Act the more that you find projects that are underway or that have been proven to be viable projects that will be threatened because of the endangered species is found and I think you would see the whole thrust of the bill be endangered. I do think we have to, hopefully, set that concern aside.

Senator CULVER. I want to thank you both very much. I know you have commitments in the House and must leave now. We are very indebted to you for taking the effort and sharing your views on this subject.

[A statement from Congressman Bevill follows:]

STATEMENT OF HONORABLE TOM BEVILL
BEFORE SENATE ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON RESOURCE PROTECTION

Wednesday, July 20, 1977

Mr. Chairman: I appreciate the opportunity to appear before you today to share some of my concern over the Endangered Species Act of 1973.

Mr. Chairman, when this legislation was before the Congress I supported it because I felt it would go a long way in calming the fears that existed over the direction man was moving in his effort to achieve progress.

Today, however, less than four years after its enactment it would be my conclusion that this Act is being used for a purpose that was never a part of the intent of Congress when it passed the Act.

This Act was seen as an important tool to help bring balance to national decision-making concerning economic growth and environmental protection. The effectiveness of this tool has been greatly reduced by the decision of the Sixth Circuit Court of Appeals in the recent case of Hill vs. Tennessee Valley Authority (snail darter), January 31, 1977. Given the Act, as interpreted by the Court, special interest groups could conceivably set out with confidence to stop any federally funded or licensed project currently underway or proposed in the United States.

The Sixth Circuit Court of Appeals has interpreted the language of the Act as being absolute and totally inflexible. It recognizes

no balance in the Act's language whatsoever. Given their interpretation, if a federally authorized or funded project is in conflict with a listed species or its critical habitat that project must be halted unless the Congress specifically exempts it or its habitat or the Secretary changes the status of the species, which under the Act he has the authority to do providing certain conditions are met.

It would certainly appear that the Congress did not intend for the Act to be considered under such narrow guidelines when you consider the general, technical, and scientific realities that exist in the world. Consider these points:

- A species is any group of organisms with common characteristics which breeds separately. The difference between species is frequently slight and recognizable only to persons specifically trained in a given field.

- Scientists have identified about 2,000,000 separate species of living organisms (1.4 million animals and 600,000 plants). New species are being identified constantly -- more than 10,000 new species are being discovered and described each year, and most scientists would probably agree that the current number for all existing species could be as high as 5,000,000.

- There are more than 600 currently described species of freshwater fish in the United States and Canada alone, and 116 of these are known darters.

-- On the substrate of a river, the rich soil of a corn field, on the floor of a forest, there may exist many thousands of different organisms often representing hundreds of species.

-- Species are constantly evolving from common ancestors. Over the ages, far more species have passed out of existence than are currently living on earth.

-- Many living organisms have very limited ranges. It is conceivable that every river, every hillside, and every field could harbor an undescribed and perhaps unique species.

-- The Department of the Interior reports that there could be 200,000 "full" species plus as many as three to five times that number of additional sub-species and individual population that needed listing and protecting as threatened or endangered world-wide.

With these scientific realities it becomes very clear that the progressive development of this nation stands in jeopardy, given the current application of the Endangered Species Act. Should there be any doubt about the motives of some in their usage of the Act, I would like to quote the Secretary of Interior when he appeared before the Public Works Subcommittee on Appropriations of which I am privileged to chair: "With the endangered species list there is no question that it is being used in some instances to bring a judicial halt to a project. The problem is not with the endangered species but with the people and the project involved. That is an instrument by which they use to bring the projects to a halt."

Mr. Chairman, it is my opinion that when this Act is used in the way the Secretary of Interior described to stop a project that was within days of completion, after spending \$102 million dollars of the taxpayers' money and depriving citizens a supply of enough electricity to heat 20,000 homes, I can think of no stronger message. It is time the Congress takes another look at the Endangered Species Act and this time keep in mind that man himself is a species, and it is our responsibility to insure that his future and welfare is taken into consideration as we go about the business of protecting species.

Senator CULVER. We also have Mr. Frank Bond, State representative from New Mexico. Mr. Bond, it is a pleasure to welcome you here. Please begin.

**STATEMENT OF HON. FRANK BOND, REPRESENTATIVE, STATE OF
NEW MEXICO HOUSE OF REPRESENTATIVES**

Mr. BOND. Thank you, Mr. Chairman.

I appreciate the opportunity to be able to appear before you as first a State official and, second, as one who actually participated in the endangered species program. I may be in a unique position to judge the act really from many aspects.

I assisted in the passage of a companion act in the State of New Mexico, which would be a companion act to this piece of legislation. Additionally, I serve on the Rocky Mountain Southwest Peregrine Falcon Recovery Team, to which I was appointed by Mr. Lynn Greenwalt, Director of the Fish and Wildlife Service.

Third, I am vice president of the Peregrine Fund of Cornell University where we have major facilities for breeding peregrines in captivity at Ithaca, N.Y., and Fort Collins, Colo. Finally, I guess I am one of the few people, of about a dozen or so in the world, who have ever bred peregrine falcons in captivity.

I only use the peregrine falcon as the example of the application of this act, viewed literally from the congressional level, through the regulatory mechanisms of the land management agencies and particularly the regulatory mechanisms of the Fish and Wildlife Service to its applications through funding, cooperation in the States, and finally to work in the field. I have worked at every level, I guess, except at your level.

The peregrine fund was established in 1970, 3 years prior to the enactment of this act, and at that time, even though there was concern about endangered species through congressional intent of the act of 1969, the peregrine falcon, as now constituted as an endangered species, simply could have been the exotic course of a very large banquet. It wasn't protected very carefully in most cases.

We have established breeding colonies to reestablish the bird as a breeding bird on the east coast primarily, where it had been extirpated from that region and, second, to supplement the dwindling population of the West. In the West, we have been involved in Idaho, Colorado, and New Mexico, and we plan to expand into the other Rocky Mountain States.

As a mechanism by which the Fish and Wildlife Service could generate the greatest amount of information on a particular species, they have policymaking bodies which are called endangered species recovery teams. I understand that there are approximately 50 to 60 of these functioning at this time.

There are four for the peregrine, one in the East, one in the Rocky Mountains-Southwest, one on the west coast, and one in Alaska. The primary objective is that we are to serve as biological information as the best means of generating that information for the Fish and Wild-

life Service. The idea is to get the best experts on a particular endangered species on the recovery teams.

The problem we have in this particular instance is that we have a duplication of effort with four different plans produced by four different teams. There are approximately 26 members on the teams, only 5 or 6 of which have ever had any previous experience with peregrines. They were primarily officials of State and Federal Government who work in the wildlife field.

The other problem that is generated by our work in the field is the fact that we are faced with changing policies on the basis of this act within the Fish and Wildlife Service. Permit me for a moment to explain to you a particular situation. In peregrine falcon recovery efforts on the east coast, we are introducing subspecies that are not native to these coasts, simply because we do not have breeding stock from the originally extirpated subspecies.

So, through our best efforts, we have chosen to insert subspecies that are exotic to this particular area and, second, that are not considered endangered as a part of an overall endangered species program.

The problem we seem to be running into right now essentially, and the administration, Fish and Wildlife Service might want to address this and further clarify it, is that even though there is not any original stock, in the larger picture we are participating in the program, yet funding for these programs potentially may not be forthcoming, simply because the actual subspecies that we are introducing are not considered endangered.

Some other difficulties we have had, and I think deserve some review, are the difficulties we have had with the Division of Law Enforcement and I think the committee should be aware of that.

On the basis of a Presidential Executive order, recently signed by President Carter, we have had direct harassment in the field of our field personnel by the Division of Law Enforcement. I can't believe that the Division of Law Enforcement got together with the management policy people, because I don't think the management end would have allowed such a thing.

Senator CULVER. What specific example do you have?

Mr. BOND. For example, we have several people hired on a full-time basis to monitor the various release sites. We had in that particular instance a Fish and Wildlife agent show up at the release site and say that if you release the bird next Friday, and Friday was a date some months ago, we will have to arrest you on the spot.

Unbeknownst to us that this was coming, we thought we were participating in an approved program and in fact, I am sure we are. However, those types of activities, in addition to the others, are demoralizing, to say the least, to our field personnel. We have had some problems with some people actually trying to quit because they obviously didn't want to be arrested.

Let me address one other issue, that of the regulatory mechanisms of the act. The Fish and Wildlife Service has designated a certain category called "captive self-sustaining populations." This in a sense is an adjunct category to endangered, threatened status whereby if a captive population of endangered species is declared to be self-sustaining,

then it will be listed as threatened, and the prohibition section, section 9, will be partially eliminated.

We have gone along with this in the hopes that with our work, that status will eventually be achieved, but just recently, June 1, to be exact, the Director has noted in his statement in the Federal Register that the captive self-sustaining status will only apply to nonnative species and not to any native endangered species.

In that regard, I wrote a letter of protest to Mr. Greenwalt and then last week under the provisions of section 4, the general section of the act, I appealed for a formal public hearing on that particular matter.

I would like to, in the interest of time, address section 7 which the Congressman before me addressed. I want to say very clearly that we support the basic concept of that section. I think, as stated by Senator McClure very ably, that we also believe that the management agencies need to be sensitive to the total needs of a particular area before an endangered species is reintroduced or introduced for the first time so as not to circumvent the intent of that section or to be used as a ploy to stop an existing project.

With that, Mr. Chairman, I would be happy to attempt to answer any questions that you might have and give any further information. I do have a formal statement that I would like to have made a part of the record.

Senator CULVER. Without objection, we will make that statement a part of the record. (See p. 33.)

Senator CULVER. Thank you, very much.

Senator McClure?

Senator McClure. Thank you, Mr. Chairman.

First of all, I would be remiss if I didn't express on behalf of my colleague, Senator Domenici, his desire to be at this committee. He was hoping he would be able to be here personally, but other commitments made it impossible for him to be here.

He did have two or three questions that he would like to have addressed. I will ask those questions on his behalf.

You have stated that there are four peregrine falcon recovery teams and that these should be consolidated into a single team. What reaction have you received to your proposal from the Fish and Wildlife Service?

Mr. BOND. In April of this year, as a member of one of those teams, I wrote a letter to Mr. John Spinks, who is the Director of the Office of Endangered Species, suggesting this in the mood that we, one, get it to a reasonable level in terms of biological information; second, that we in the interest of saving money, quite frankly, not have so many people on the recovery team; and, third, in the interest of my further work in the field, that we not have a further level of bureaucratic review of all research, since there is no statutory authority for recovery teams and, in fact, they are only policymaking in terms of devising the plans for the recovery efforts.

What we are finding now is that through the interest of the Division of Law Enforcement, there are going to be additional requirements that recovery teams review research, at least that is what it appears

in some permits that have been issued recently. I don't think that is the purpose of recovery teams.

The Associate Director of the Fish and Wildlife Service has stated categorically that the recovery teams should not be doing anything else besides writing the recovery plans and then serving as a source of biological information; but to your specific question, I have not received a response to that letter.

That letter, by the way, is part of my record.

Senator McCURE. Has the Fish and Wildlife Service assisted in the direct funding of your project?

Mr. BOND. Yes; it has in terms of direct grants. Let me state for the record that we are very appreciative of that assistance. In section 6 where cooperative agreements may be established between the Federal Government and the State governments for the carrying out of the activities and the purposes of this act, there are funding mechanisms whereby States cooperate on a percentage basis with the Federal Government.

We would like to see an amendment whereby an approved private program may receive direct funding as well as the continuation of cooperative agreements with the State government.

Senator McCURE. One final question on behalf of Senator Domenici: Section 7 has been a real problem for us because it has conflicted with some public works projects. Do you have any difficulty with this section?

Mr. BOND. No difficulty unless it conflicts with an active peregrine site. We feel that from our point of view, that this can be eliminated by proper assessment under the National Environmental Policy Act, first, since that will be a requirement for those public works projects.

On the other hand, there might be a conflict if it is pushed to some ridiculous degree. Let me give you a particular example. Recently, a letter was submitted to the recovery teams which I personally didn't respond to, but the team leader did, to determine whether a peregrine falcon may sometimes fly over wetlands where there is now permitted waterfowl hunting; and whether in fact there was any potential that they may be shot there.

The potential, of course, is there, but nevertheless, if we start cutting down the wetlands as hunting habitat for the sportsmen, then we are going to have a conflict to the same degree that you have indicated earlier, Senator McClure.

Senator McCURE. One of the means by which the endangered species are protected is the designation of the critical habitat and one of the areas of controversy that has arisen in my State is the proposal for the designation of some critical habitat for grizzly bear. This proposal is for a larger area than was first suggested.

I have introduced legislation that would provide that, before the designation of critical habitat area is made; an environmental impact statement must be prepared and filed. The action of the designation of the critical habitat area is thus made a Federal action requiring the preparation of an EIS.

Do you feel that the EIS would help resolve conflicts early, before they develop? Would it be a constructive thing in your judgement, or

would the preparation of the EIS be an overly burdensome requirement?

Mr. BOND. As far as the requirement, Senator, I can't speak to that because, in fact, I wouldn't be in the position or even assisting much in the actual preparation. In our case, and I am speaking specifically to our particular recovery efforts, it would not affect us.

I think in all cases, we can justify what we have done on biological grounds and whether what we are doing in the field is sensitive, as I explained earlier, to all the needs of a particular area. Then I feel that our declaration of an area of the country as critical habitat for the peregrine falcon will be justified and will be supported by the environmental assessment or impact statement.

Senator McCLURE. Thank you, very much.

Senator CULVER. Thank you very much, Mr. Bond. We appreciate your appearing here this morning.

Mr. BOND. Thank you very much for allowing me to appear.

[Mr. Bond's prepared statement follows:]

**STATEMENT ON THE ENDANGERED SPECIES ACT OF 1973
BEFORE THE SENATE COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS**

by

**State Representative Frank M. Bond
540 Camino Rancheros
Santa Fe, New Mexico 87501**

July ²⁰~~19~~, 1977

Washington, D. C.

Frank M. Bond

Endangered Species Act

I am State Representative Frank M. Bond of 540 Camino Rancheros, Santa Fe, New Mexico 87501. I appreciate the opportunity to appear before you.

At the request of United States Senator Pete V. Domenici, I am appearing before you as both a state official and an individual with personal knowledge of the practical application of the Endangered Species Act of 1973. In 1975, due to my interest in the endangered peregrine falcon, I was appointed to the Rocky Mountain/Southwestern Peregrine Falcon Recovery Team by the Director of the U. S. Fish and Wildlife Service. In addition I serve as vice president of the Peregrine Fund, Inc., a non-profit organization, which supports the massive peregrine falcon captive propagation effort being carried on at Cornell University and in Colorado. Dr. Tom J. Cade, Professor of Ornithology at Cornell University, is the President of the Peregrine Fund and General Director of the peregrine falcon research program.

The original intent of the Endangered Species Act was to implement methods by which we could save and preserve for posterity various species of fauna and flora which are threatened with extinction. This ideal is noble and can be achieved with many species of wildlife; provided we do not complicate recovery efforts with cumbersome bureaucratic red tape that slows down and confounds effective actions; provided sensible, flexible regulations are promulgated with the original intent of the Endangered Species Act in mind; and provided that reasonable amounts of funding are available and spent in the wisest manner possible. These

goals are what the Congress intended when the Endangered Species Act was enacted and these are what the citizens and taxpayers expect. However, based on my experiences with the Fish and Wildlife Service regarding our peregrine work, it is my conclusion that the intent of Congress quite often is being hampered by the very agency charged to carry out the provisions of the Act. Allow me to provide a brief background of the research efforts on behalf of one endangered species, the peregrine falcon. As late as 1971, the endangered peregrine falcon could be poisoned, shot or served as the main course of some exotic meal in many states. Now the very mention of the "peregrine falcon" grips many in the bureaucracy with paranoia. Obviously, both extremes are incompatible with the restoration of the species. This need not be the case, even though the peregrine is one of those glamour species in which many people in this country have a strong interest.

In 1965 it was well-documented by Dr. Joseph Hickey at an international peregrine conference held in Madison, Wisconsin that the peregrine falcon was declining rapidly as a result of the insidious effects of DDT and its metabolites on the egg shell thicknesses of these magnificent birds. The embryos were not being incubated full term because, during the course of incubation, the weight of the incubating female would break the eggs and kill the embryo. Unfortunately, this syndrome continues because of the long-lasting effect of DDT, even after the use was restricted in the United States.

The Peregrine Fund was established at Cornell University in 1970, three years before the passage of the Endangered Species Act. The goal of the research supported by the Fund is to develop methods for the captive propagation of the peregrine falcon and then to introduce captive-

bred falcons to the wild in the eastern United States, where the species has been extirpated since the 1960's, and to supplement dwindling populations in the west. The endeavor was met with skepticism by many people; at that time only two known successful breedings of peregrines had occurred in the almost forty centuries of man's fascination with this species in the sport of falconry. Our program was begun at a time when a similar federal government program at the Patuxent Wildlife Center in Maryland appeared doomed to failure. Nevertheless, many falconers in this country unselfishly donated their birds to the project. Skepticism has now turned to strong support by most people because we are now producing almost 100 young peregrines each year and expect this figure to climb with the expansion of our western facilities in Ft. Collins, Colorado and with affiliated private projects in Chester Springs, Pennsylvania and Santa Fe, New Mexico.

The majority of these young birds have now been released to the wild. We now see some tentative success for the recovery of the peregrine in the east where young birds released in 1975 and 1976 have returned to several release sites. These first results in the field now give us realistic expectations that wild breedings of peregrines will take place within a few years.

The plan for captive propagation of the peregrine and its subsequent restoration to the wild, as originally conceived by Dr. Cade between 1965 and 1970, remains virtually unchanged today even though many others have become involved. A large portion of that plan has been carried out, thereby demonstrating that (1) captive propagation of the peregrine can be successful under proper conditions, and (2) release of young birds to the wild can be accomplished with the expectation that they are

able to survive and to breed. The restoration of an endangered species is within our grasp.

The federal government did not become actively involved in the restoration of the peregrine falcon, other than the early futile attempts at the Patuxent Wildlife Center, until 1975, two years after the first peregrines were bred at Cornell and five years after the Peregrine Fund was established. Once the major work by non-governmental biologists had been done in the lab and in the field to determine population status (ref. Canadian Field Naturalist, vol. no. 3, 1976), then four peregrine falcon recovery teams were appointed by the Director of the Fish and Wildlife Service to work on the species in four separate geographical locations: the East; the Rocky Mountains and Southwest; the West Coast; and Alaska.

I should point out that endangered species recovery teams are not based upon any specific statutory or regulatory authority given in the Endangered Species Act, but are the Fish and Wildlife Service's means of obtaining the best information and expert advice available on a given endangered species. There are approximately 50-60 recovery teams working on various endangered species at this time. The original intent of the recovery team concept, as expressed in a personal communication by Mr. Keith M. Schreiner, Associate Director and Endangered Species Program Manager of the Fish and Wildlife Service, was to gather a group of experts on a given species so that they might write a "recovery plan" for the species and supply biological information when asked. I must reiterate that the recovery teams have no regulatory authority; they serve at the pleasure of the Director of the Fish and Wildlife Service.

In the case of the peregrine falcon, we have four separate teams

working on essentially the same problem, a problem which the Cornell project has already demonstrated can be solved. Nevertheless, four separate recovery plans are being produced, with unnecessary duplication of effort. A single team could have written a national plan taking into consideration regional problems or unusual circumstances and the work already accomplished in captive propagation and release to the wild of peregrines bred in captivity, i.e. the successful Cornell project plan.

Any plan must be flexible to take into consideration the ever-changing management techniques as they evolve in the field work. Therefore, recovery plans are nothing more than our best estimate of how we should proceed to accomplish the recovery of the peregrine falcon and, by necessity, changes will have to be made.

As now constituted the recovery teams are not meant to do the field work; this must be accomplished by the executive land management agency and cooperating federal and state agencies. Again, this emphasizes the recovery teams' chief function as a source of biological information. Unfortunately, in the case of the four peregrine falcon recovery teams, only 5 or 6 team members have had any previous experience in working with the species. Of these few with prior experience, only two work for government. The remaining twenty members are, for the most part, employees of state and federal governments who only began to learn about the peregrine falcon's problems upon being assigned to the team. However, there are a large number of individuals in private life who have a wealth of knowledge on the peregrine falcon. The latter group, for the most part, is not actively involved in the recovery efforts but should be.

In fact, the recovery teams are now beginning to represent another

level of administrative review for all research on the peregrina. Researchers often find now that they must coordinate all of their activities with the recovery teams. This is being demanded of the researchers by the Division of Law Enforcement, even though the recovery teams are not empowered legally to function in this capacity. This is the function of the endangered species coordinators in the six regional offices of the Fish and Wildlife Service, not the recovery teams.

In a letter on April 25, 1977 (see Appendix I) to Mr. John Spinks, Chief of the Office of Endangered Species of the Fish and Wildlife Service, I suggested that the four peregrina falcon recovery teams be dissolved into a single team of 7 to 9 experts. This would alleviate some of the problems we are now experiencing and would save a considerable amount of the taxpayers' money.

We must face yet another problem, that of changing policies of the Fish and Wildlife Service concerning our reintroduction efforts in the eastern United States. There are no representatives of that population of peregrines known to have survived the onslaught of pesticide poisoning (referred to above) of their natural environment. If there are ever to be peregrines in that ecosystem again, they cannot, of necessity, be of the same genetic stock as lived there previously. Although the ornithological community equates taxonomically the peregrine that formerly occupied the eastern United States with that subspecies of peregrine still remaining in the west, there were, in fact, considerable differences in the birds well-known to some of the falconers in this country. Therefore, in arranging the release of captive-bred young in the east, researchers with the most knowledge about the species have attempted to select peregrines to match the habits and environmental adaptations of

the former residents.

On May 24, 1977, President Carter signed Executive Order Number 11987 prohibiting the introduction of exotic species of plants and wildlife onto land owned, leased or administered by the federal government and urged the various states and private citizens to do likewise. The President stipulated that exemptions from such restrictions can apply to species determined by the Secretaries of Agriculture and Interior not to pose a threat to the natural eco-systems of the United States.

Less than a month before the signing of the Presidential Executive Order, the Secretary of Interior had published a list of "Injurious Wildlife" whose importation and introduction into the United States might have an adverse effect on our natural ecosystems. The publication of that list represented the results of four years of study, public hearings and scientific advice in the determination of such "injurious species". There were no birds of prey on that list. Yet immediately upon the publication of the Presidential Executive Order, a regional official of the Fish and Wildlife Service, at the apparent urging of the Division of Law Enforcement, made the arbitrary decision that such restrictions would not only apply to the peregrines we are reintroducing in the east (contrary to the earlier decision that such were not "injurious"), but would also apply to "subspecies" of those birds. This is in direct contradiction to the Presidential Executive Order which expresses concern only about nonnative species.

In applying this decision, law enforcement agents harassed and restricted several of our field workers conducting reintroduction activities in the east. If such a capricious decision is allowed to stand and its implementation restricts our reintroduction efforts, it will have deleterious

effects on our ability to recover the peregrine falcon on our continent and thus contravene the intent, if not the letter, of the Endangered Species Act.

I have included a letter from Dr. Cade to the Director of the Fish and Wildlife Service relating to the specific problem discussed above (see Appendix II). Dr. Cade speaks eloquently to the problem on a biologically justifiable basis. Dr. Cade's letter reveals the frustrations many of us have with the ever-changing policies of an agency which has to deal with a problem that requires a long-term solution.

The specific, overzealous law enforcement efforts to which I have alluded are symptomatic of a frame of mind that appears to be developing in the Fish and Wildlife Service. It is rumored that for some endangered species the Fish and Wildlife Service has budgeted four times more money for law enforcement activities than for actual recovery efforts. Some of us wonder whether the Chief of the Division of Law Enforcement is not, in fact, running the Fish and Wildlife Service instead of the Director. I believe the money allocated to endangered species programs should come under intense scrutiny by the Congress at the next budget hearings for the Fish and Wildlife Service. Specifically, those of us working with the peregrine falcon would like to know how much money is budgeted overall for law enforcement dealing with the peregrine and what the record of accomplishments has been. How many cases have been investigated, how many brought to trial, and how many convictions obtained? What sorts of violations have been encountered and how frequently?

I strongly support the intent of the Endangered Species Act of 1973. It represents a "we care" attitude on the part of the American people.

Nevertheless, there needs to be greater flexibility in some parts of the Act, and some tightening of the language in other parts. If this is not done, I believe the Department of Interior's regulations will continue to usurp the legislative prerogative and intent of the Congress.

At this time I would like to turn my attention to the language of the Act. I will attempt to point to some specific areas where, through amendment, the Act can be strengthened to protect the wild populations of endangered species.

1. Section 7, the Interagency Cooperation Section, is what many believe to be the strength of the Act, while others feel this has been included to stop all development. I support the concept of this section as it was originally intended by Congress; that is, development should not take place in the critical habitat of an endangered species when that development would affect significantly the survival of the total remaining population and no other alternatives for survival are available. However, land management agencies must be especially sensitive to all the needs of a particular area before critical habitat is established for an endangered species where that species did not formerly exist but has been introduced through a management program. In addition, land management agencies must be careful not to declare an area critical habitat where an endangered species has been introduced for the first time or has been reintroduced as a ploy to stop a contemplated project. Finally, when an endangered species occurs in an area where construction has already begun on a project before the preserve of the species was known, every conceivable step must be taken to find an alternative for the species in question before the project is stopped. To do otherwise would be unfair to the taxpayers who have already paid the bill for the

partially completed project.

2. As the Endangered Species Act is now written, the two classifications of wildlife are "endangered" and "threatened". In the course of the promulgation of regulations under the Act, the Director of the Fish and Wildlife Service has designated a sub-category, that of captive, self-sustaining populations of endangered species. The essential meaning of this adjunct category is that a population of an otherwise endangered species, whether exotic or native, which has been bred in such numbers in captive environments that it is capable of perpetuating itself is classified as threatened. This sub-category exempts such populations from most parts of the Prohibitions Section of the Act, since it has been included in the Act to protect the wild populations.

However, on June 1, 1977, the Director chose to apply this sub-category only to the captive, self-sustaining populations of exotic species. By limiting the new classification in this manner, he has removed the incentive for many who are attempting to achieve the goal of captive, self-sustaining populations for endangered species. Many people have written to protest this arbitrary ruling, and I have included my own letter of protest as part of this testimony (see Appendix III).

The Act should be amended to include the ^{category} status of the captive, self-sustaining populations. The new sub-category of wildlife should be regulated by the Secretary of Interior only to the extent that he assures that captive populations remain self-sustaining.

3. I suggest a new definition for the term "species" as used in this Act to eliminate the confusion over the term "subspecies". By this new definition any subgroup of a species would be designated by biogeographical boundaries rather than by any physical, taxonomic description.

4. Section 4 of the Act deals in part with Similarity of Appearance Cases. This permits the designation of all similarly appearing species of an officially listed species as endangered or threatened even though they, in fact, are not endangered or threatened. Obviously this benefits law enforcement personnel who are not able to distinguish among the various similar or geographic populations of an endangered species. Therefore, this section should be amended to empower the Secretary to exempt from this Act any individual animal as a non-endangered species or a non-endangered population of an endangered species for which the owner can legally document the geographic origin.

5. Section 9(b), dealing with Species Held in Captivity or Controlled Environment, should be amended to clarify the intent of Congress with regard to the progeny born after the effective date of this Act to wildlife held prior to the effective date of the Act. In many cases wildlife held prior to the effective date of the Act are considered to be personal property. Then, rationally, it follows that the progeny born to the wildlife held pre-Act should also be exempt from the Act's provisions. It appears that this was clearly the intent of Congress as demonstrated in Section 9 of the Conference Committee Report on the Act. However, the Fish and Wildlife Service has chosen to apply the restrictions of the Endangered Species Act to the progeny of all adults, whether ^{the adults} they were taken before or after the effective date of the Act. This has placed an undue hardship on many captive propagators. In our case it is impossible many times for us to return captive-bred peregrines to people who had lent us their birds in 1971 or 1972 before the Endangered Species Act was enacted. In a few cases, due to the restrictions, the same ^{People} ~~individuals~~ have withdrawn their breeding peregrines from our project, to the detriment of our ability to

assist in the recovery of the species.

Section 2, Findings, encourages "...the States and other interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs which meet national and international standards...". Some of the best endangered species work is being accomplished by institutional and private organizations and by individuals throughout the country. The Congress must insist that this intent is carried out; the Fish and Wildlife Service must not be permitted to destroy the incentive of the institutional and private captive propagators of endangered species.

6. A method has been established in Section 6, Appropriations, whereby the states may enter into cooperative agreements with the federal government for financial assistance to engage in endangered species programs. These programs, if approved initially, are subject to review annually by the Fish and Wildlife Service. A similar provision should be incorporated into the Act to provide for the direct funding of non-governmental programs for endangered species recovery.

7. To do endangered species work costs a great deal of money. I believe the bulk of any budget designated for an endangered species should be spent on the management, propagation, habitat acquisition and field work for that species. With this in mind, it would be appropriate, through amendment to Section 6, to limit law enforcement expenditures on a native endangered species to not more than 5% of the funds designated for that species.

(For the amendments as I propose them, see Appendix IV).

I have heard expressed on several occasions that we should not do anything to preserve endangered species. These same individuals say endangered

species should be left to pass over the brink into extinction as evidence that man has been the despoiler of the earth. That point of view is a double indictment against our society. If at some time we have done something to push a species of wildlife to the edge of extinction, then to do nothing to rectify that wrong is doubly condemning. Those of us working on endangered species programs feel that in most cases something must be done in such situations. Our work with the peregrine falcon demonstrates that successful programs can be implemented to recover an endangered species if we can be free of the burdensome restrictions of the federal government to accomplish our goals.

APPENDIX I

FRANK M. BOND
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 808 983-6888

April 25, 1977

Mr. John Spinks, Director
 Office of Endangered Species
 U.S. Fish and Wildlife Service
 Washington, D.C.

Dear John:

I have not had an opportunity to congratulate you on your new position. It must be quite a change from your previous job. I, personally, am pleased that you have decided to stay with the Fish and Wildlife Service.

As you may be aware, almost two years ago I was appointed to the Rocky Mountain Southwest Peregrine Falcon Recovery Team by Lynn Greenwalt. At that time the team was charged with writing a recovery plan for the peregrine falcon in our geographical region of the country in addition to providing biological data on the species to the Fish and Wildlife Service.

We have met regularly over the past two years. Under the competent leadership of Gerald R. Craig of Colorado we have completed our plan. It is my understanding that the plan has been approved or is about to be approved by the Director. When the plan has been approved, it is my feeling that our mission has been accomplished.

That will bring us to a junction in our concept of the recovery of the peregrine falcon. There are four peregrine falcon recovery teams, each with its own jurisdiction. It seems likely that all of the teams will have completed their plans shortly. Then, I ask, what will be the role of the various teams?

About a year ago, a meeting was held in Denver of the membership of all four teams. At that time I proposed that all four teams be dissolved and then be reconstituted into a single team of not more than 7 to 9 experts on the peregrine falcon. I had proposed this realizing that writing four separate recovery plans would be a tremendous duplication of effort. I think the similarity of the plans will substantiate this contention. A single team could have written a national plan taking into consideration regional problems or unusual circumstances.

During the entire time we were writing the Rocky Mountain, Southwest Plan I tried to impress upon our team the real need for flexibility, so that those working with the plan would be in a position to make timely decisions in the field. By and large I think you will find that our plan accomplishes that goal. We have recognized the need for and usefulness of captive propagation as a means to support and augment the wild population as well as the necessity of manipulating/managing the wild populations. We have steered clear of putting down in the plan specific priorities on management techniques as well as specific sites where various operations will take place. To do otherwise would clearly ignore the "nature of the beast". Also we must realize that we are still in the scientific research aspects of this work. In short, the plan(s) is/are our best estimate of how we should proceed to accomplish the recovery of the peregrine falcon. Nevertheless, changes will have to be made.

As now constituted the Recovery Teams were never intended to do the field work. According to the Endangered Species Act this must be done by the land management agencies. With the primary tasks accomplished, the Teams may tend to find themselves in "make work" projects or in another level of review capacity of all work being done on the peregrine. Since the recovery team concept does not have any statutory or regulatory authority, the various teams should only function as a source for biological information.

In the case of the peregrine falcon this can be accomplished with a single national team, made up of people very familiar with the species. When called upon this team could act in an advisory capacity as originally conceived. A single team would alleviate the inter team squabbles which now appear to be popping up. A single team would save the Fish and Wildlife Service considerable money in travel costs alone. Finally, with a single team in its proper place as an advisor to the governmental agencies, the endangered species coordinators of the various regions will be in a position to make decisions on the welfare of and work on the species. In fact this is where the proper authority rests.

Since this may be an appropriate moment in the peregrine recovery effort to make a change, I hope you will give real consideration to my proposal. If you agree with me, I believe you will have a better source for biological information on the peregrine falcon than you have now. In fact, you will have a smoother operation.

We hope you will have an opportunity to visit us here some time soon. It has been a long time since we have had time for a chat.

With best wishes,

Frank M. Bond

Frank M. Bond

FMB:jb

CORNELL UNIVERSITY

DIVISION OF BIOLOGICAL SCIENCES

ITHACA, N. Y. 14853 U.S.A.

Reply to:

SECTION OF ECOLOGY & SYSTEMATICS
BLDG. #6 LANGMUIR LAB

7 July 1977

The Director
Fish and Wildlife Service
U.S. Dept. of the Interior
Washington, D.C. 20240

Dear Sir:

I write in the hope that I may be able to influence policy-making decisions currently under consideration by your endangered species staff, policy that I understand could bear heavily on our program to restore a breeding population of Peregrines Falcons in the eastern United States. My input will be biological in reference rather than legal. I realize that the policy you are developing is intended to be general, but I am only concerned here about its impact on Peregrine recovery work.

The questions that concern me relate in part to "interpretation" of the Endangered Species Act of 1973 and to the President's Executive Order 11987, May 24, 1977, on Exotic Organisms. The two most basic issues center around the use of captive produced Peregrines from non-indigenous stocks for introduction into the vacant breeding range of the species in North America and on whether or not it is appropriate to use funds allocated under ESA to propagate and stock falcons from non-endangered populations ("subspecies") in habitat now vacated by an endangered form. If policy emerges to state that non-indigenous and exotic forms of the Peregrine cannot be released for reintroduction in the East and/or that "endangered species money" cannot be used for this purpose, then the whole recovery effort that we have been building up over the last seven years for the Peregrine in the East will be seriously compromised, if not scuttled. The people in your agency who are responsible for developing this policy need to give very careful consideration to the effects their determinations will have on the Peregrine recovery effort, which enjoys a very wide public support and anticipation of future benefits from the governmental and non-governmental monies already expended on this program over the past years.

Speaking first as a troubled citizen, I feel that the public interest in preservation of endangered species would be better served if civil servants in the responsible agencies paid less attention to the legalistic (I use the word advisedly instead of "legal") niceties of the wording of Acts and Orders and devoted more effort to promoting actions to effect their primary intent. The wording of these Acts and Orders is often abstruse at best, and definitions of terms and words are often at variance with their commonly understood meanings and uses in the real world. This is particularly true when definitions of scientific terms and concepts are attempted, so that we have to contend in our thinking with a legal definition that may be at variance with the scientific meaning. The terms "species," "subspecies," "native," and "exotic" as used in the ESA and the Executive Order provide such difficulties in the case of the Peregrine Falcon. It is unfortunate that the drafters

of these legal instruments do not consult biologists before they start to write about biological subjects.

The ESA sect. 3(11) defines "species" in an approximately correct biological way, although it excludes one category of populations commonly recognized by biologists as belonging to species, namely disjunct allopatric populations that are separated by geographic barriers from other populations of the same species and, hence, are reproductively isolated from them physically. Species are, in fact, populations the members of which freely interbreed and exchange genes in nature, or that have the potential for doing so, but that are reproductively isolated by genetically determined mechanisms from all other populations of similar organisms. Reproductive isolation is the key to the definition, because it means that all members of a species, regardless of how widespread or how many populations have been described by taxonomists as "subspecies," share a closed, cohesive, coadapted gene pool and a common epigenetic system of development. The genetic implications of reproductive isolation mean, furthermore, that species are the fundamental units of evolutionary change, because the genes of no other population can contribute to the evolutionary potential of a closed gene pool. Thus, closed gene pools are what natural selection has to work on. A further significance is that species are the units of biological organization that adapt to environment, that specialize for particular modes of existence, for ecological niches, and that shift adaptations through successive generations in response to environmental changes. It is for these reasons that the species has remained a central unit of organization in studies of evolution, ecology, behavior, physiology, and population biology, and it is also for these reasons that the ESA rightly focuses on the species as the taxon of fundamental importance for preservation.

The legislative history of ESA, to which the Chief, U.S. Forest Service refers in his letter of 10 February 1977 to the Director, FWS perhaps says something important for the legal interpretation of what is meant by a "subspecies," but it only serves to confound biological meanings, for in no way is a subspecies, in real nature, equivalent to a full species. A subspecies is an arbitrarily delimited geographic population (deme) of a full species. There are, to be sure, degrees of difference (genetic and phenotypic) among the demes of a species; and one of the current weaknesses of ESA is its failure to recognize that there are these degrees of difference and that there are different "kinds" of species. For example, some disjunct allopatric populations, which are reproductively isolated by geography from closely related populations, may be genetically and phenotypically quite distinct from other conspecifics and on the way to becoming full species in their own right. Such subspecies and so-called "semi-species," when threatened or endangered, need to be given more consideration under the provisions of ESA than a similarly afflicted contiguously allopatric "subspecies" of a wide-ranging, continental species. More loss of unique genetic material is at stake in the first case than in the latter.

The Red Wolf (*Canis niger*) is a good example of a population that achieved considerable morphological distinctiveness in geographic isolation from other populations of "wolves" (*Canis spp*) without, however, developing sufficient reproductive isolating mechanisms to prevent extensive "hybridization" or secondary intergradation with the Coyote (*Canis latrans*), once the two populations came into geographic (sympatric) contact. While there is room for argument about whether the Red Wolf is a "good species" distinct from the Coyote, there is no doubt that the original Red Wolf population, which evolved in geographic isolation from the Coyote, represents a unique constellation of genes--a gene pool that is well worth our effort to try to save.

Contiguously allopatric breeding populations, which in the past have frequently been subjectively divided up into "subspecies" by taxonomists, usually show continuous variation over the entire species range, and adjacent populations share a high proportion of genes in common. The Peregrine is one of these "polytypic" species with as many as 16 to 22 described subspecies, depending upon which "authority" one accepts; but in most cases no more than 50 per cent of the individuals from one subspecies can be distinguished phenotypically from 50 per cent of the individuals in another. This difficulty in distinguishing subspecies is clearly evident in the way North American breeding populations have been treated by taxonomists. The Checklist of the American Ornithologists' Union, a conservative organization, still recognizes but two "official" subspecies of *Falco peregrinus* on the continent: *pealei* breeding in the Pacific Northwest Coast and Aleutian Islands and *anatum*, which breeds everywhere else. In 1968 my good friend, Clayton White, formally described a new subspecies, *tundrius*, which the Secretary of the Interior subsequently recognized by listing as an "endangered subspecies" of the Peregrine. Curiously enough, White was originally urged by Interior Department officials to describe the Arctic breeding Peregrines as a named subspecies so that the southern *anatum* populations could be declared endangered under the old 1969 Act! What better proof of the arbitrariness and subjectivity of subspecies is needed than that?

Everyone would agree, I think, that it clearly was the intent of the Congress in the wording of section 3(11) of ESA to make it possible for the Secretary of the Interior to list a "subspecies" or any other population unit of a full species as threatened or endangered without so designating the entire species. Somehow this idea needs to be stated in straightforward language without doing violence to the biological concept of species. Since there often is no agreement among specialists as to the geographic range of a "subspecies" or which geographic populations should be included in a particular "subspecies," more precision and objectivity would be introduced into the official listings of endangered species and threatened species by avoiding the use of subspecies names entirely and simply listing full species by geographic distribution. Thus, a meaningful "listing" for the Peregrine Falcon in North America might be as follows: *Falco peregrinus*, all breeding populations south of the boreal forests, excluding the Pacific Northwest Coast of British Columbia, Southeastern Alaska, and the Aleutian Islands are endangered; all breeding populations in the boreal forests and tundra regions of Alaska, Canada, and Greenland are threatened. The Peregrine Falcon is a prime example of the wisdom and utility of this procedure for listing, as by no means all breeding populations of this worldwide species are threatened or endangered; nor have the population declines followed along the arbitrary geographic limits of subspecies designations for this species. Such a procedure for listing would also allow for a more orderly, timely, and flexible process of "de-listing" by geographic designation, as local and regional populations recover their numbers.

The Chief, U.S. Forest Service has correctly pointed out in his letter that "a recovery plan which proposes the stocking of a different subspecies for an endangered subspecies cannot be considered a recovery plan for that endangered subspecies. In fact, it is possible that, in some cases, such a plan could be detrimental to the endangered subspecies." The western "*anatum*" population is such a case. It would be inappropriate, indeed biologically unacceptable, for government to sponsor large scale releases of non-indigenous Peregrines into the range of that population, as genetic swamping or adulteration of the wild genome could occur, a point that is well made in the Recovery Plan for the Rocky Mountain Southwestern Peregrines.

It does not follow from that valid argument, however, in a case where a species has been entirely extirpated as a breeding bird over a very large portion of its range (hundreds of thousands of square miles in the case of the eastern Peregrine) and the

indigenous genetic stock is no longer extant, that the establishment of non-indigenous genotypes into the vacant range falls outside the legitimate bounds of endangered species recovery and, therefore, should "not enjoy the benefits and authorities provided in the ESA." There is no wording in the ESA, its regulations, or legislative history that can be construed to demand or even encourage this interpretation. In relation to the Eastern Peregrine Recovery Plan, the Chief, U.S. Forest Service makes a misleading point when he talks about stocking "taxonomic equivalents" for endangered subspecies. We are not looking for a taxonomic equivalent; we are looking for an ecological equivalent--some stock of Peregrines that have at least a minimum capability for survival and reproduction under the prevailing conditions of our eastern United States environment. Although such birds may be genetically somewhat different from the original, indigenous breeding population, natural selection operating over several generations will select out a "fit" gene pool for the new population.

If one were to follow the legalistic view espoused by the Chief, U.S. Forest Service and others, it would be perfectly correct for us to take "anatum" Peregrines breeding at 9,000 feet in the Rocky Mountains and release them in the eastern United States because they are "taxonomic equivalents" of the same named subspecies as our former, eastern breeding population. But this would be biological lunacy, because the Rocky Mountain Peregrines are not ecological equivalents of the former eastern Peregrines. In particular, they have evolved an eggshell porosity that is adaptive for gaseous exchange at the low barometric pressures characteristic of high altitudes but which would be maladaptive for eggs incubated at lower elevations near sea level. Biological wisdom dictates that we look for a close ecological counterpart, even though it may have been named some other subspecies--peregrinus, brookei, pealei, tundrius--and may come from some "exotic" part of the world.

The President's Executive Order clearly defines what it means by "native species" and "exotic species." It also explicitly defines what it means by "United States," but unfortunately the latter is not a correct or commonly accepted definition. By including Puerto Rico, Samoa, Virgin Islands, Guam, etc. as a part of the United States, the order makes the definitions of "exotic" and "native" meaningless from both biological and political standpoints. What this curious document says to me is that absolutely no violence would be done to its wording by introducing the Guam Fruit Bat into southern California, because by the definitions given the fruit bat is a native species of the United States:

As written, the Executive Order applies only to full species, as there is no recognition in its wording of subspecies, *demes*, or any other population units of lesser inclusiveness than full species. Unfortunately, the order is written as though there are only two kinds of species with respect to U.S. political boundaries--those with natural distributions entirely outside the United States (exotics) and those with distributions entirely inside the United States (natives). It fails to comprehend the many wide-ranging species that occur naturally both within and without our borders. In biological fact, and also coincidentally by the definitions of this order, the Peregrine Falcon is a native species of the United States; by logical and legalistic argument none of its worldwide populations comes under the proscriptions of this order. Even if by some tortuous argument a legal counsel finds a way to apply the "subspecies definition" of ESA to this order, sect. 2(d) could be invoked in behalf of the Eastern Peregrine Recovery Plan's recommendation to use non-indigenous and exotic forms of the Peregrine for release in the United States.

These questions about "exotic" races of the Peregrine and about the use of endangered species money to establish "non-endangered" genotypes into vacant breeding range have been under active consideration inside and outside of government for at least five years. I can remember some discussions and exchange of correspondence with Earl Baysinger, Gene Ruhr, and others in the Office of Endangered Species as far back as 1972. In February of 1974, the National Audubon Society convened a Conference on Peregrine Falcon Recovery, chaired by Prof. J.J. Hickey and attended by some 30 distinguished scientists--experts on the Peregrine--conservationists, and federal agency representatives. The question of genetic problems and use of exotics were discussed in depth. "It was agreed that every effort should be made to bolster existing wild stocks by all available techniques, but that the program should include, from the start, a basis for introducing the most promising, ecologically-preadapted stock into eastern sites. Nature will then "select out" this stock so as to recreate a viable "new" race in the region lost by the original population. It won't be a Rock Peregrine, but still a proper Peregrine adapted to today's environment." (See page 25 of the proceedings.) Further, Drs. Drury and Nisbet particularly emphasized that the best strategy for successful reintroduction of the Peregrine in the East is to maximize the genetic diversity of the breeding stock and of the birds to be released, so that natural selection can pick out those genotypes that are best suited for survival and reproduction under the environmental conditions existing now.

Again, throughout 1975 and 1976 the Eastern Peregrine Falcon Recovery Team, appointed by the Director, FWS, considered all of these points and others and came out with a recovery plan recommending judicious but necessary use of non-indigenous and exotic forms of the Peregrine for restoration of a breeding population in the East, recognizing the clear difference that exists between the eastern situation where no wild breeding population remains and the West where remnant indigenous breeding populations still do occur. In February of 1976, the Regional Director of FWS for Region 5, at the request of the Eastern Recovery Team Leader, wrote a "position statement" endorsing the recovery team's recommendation to use Peregrine Falcons from populations called *tundrius*, *anatum*, *pealei*, *pergrinus*, and *brookei*. After a telephone conversation with a local law enforcement agent in Maryland, the Regional Director rescinded his position statement on 9 May 1977. On 3 June he sent a telegram directing that the Cornell falcon program desist from further release of exotic subspecies of Peregrines. Now your staff is engaged in drafting a policy.

The legalistic arguments against the use of non-indigenous types of Peregrines for endangered species recovery and against the expenditure of ESA money for restoration involving use of individuals from non-endangered populations come almost entirely--if not exclusively--from civil servants within the federal agencies. Many of the arguments appear to be diversions to hide deeper motives, for example, the implied worry in the Forest Service about setting a precedent for the reintroduction of wolves into vacant range in the National Forests, or the concern in some quarters that establishment of a breeding pair of Peregrines in a particular area might result in the designation of "critical habitat" that could be unfavorable to commercial or exploitive interests. Few agency people argue against the plan from biological objections or because they think it is poor conservation.

The American public, on the other hand, is largely unaware of these internal arguments and questions, and probably could care less. A very large percentage of the American conservation public wants to see a breeding population of Peregrines re-established in the East. The people do not much care how it is done or what kind of

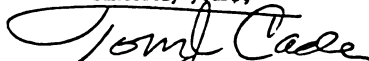
Peregrines are used, as long as the desired end result is achieved as quickly and as economically as possible. (They seem, in fact, quite willing to leave the details of methodology up to those of us who have demonstrated some success in getting the job done.) The American people, I am sure, feel that Peregrine recovery in the East is a bona fide part of our national endangered species program and that it should be supported by the federal government through the provisions of the Endangered Species Act. Most of them probably think that it should be entirely supported by ESA.

After all these years of deliberation and work, which have led us to the threshold of success in establishing some breeding pairs in nature, and the development of a strong public desire for the return of the Peregrine in the East, I find it incredible, and terribly discouraging, that the Fish and Wildlife Service would now reject the Recovery Team's plan and back away from its own position statements of the past, just because a few people in government have asked questions that they hope will be answered in ways favorable to their own bureaucratic interests.

It has been suggested that eastern Peregrine recovery could be carried forward under the Migratory Bird Management Program of FWS without creating so many problems. I find this suggestion unpalatable for both philosophical and practical reasons. First, the work is not migratory bird management; it is endangered species work, and it properly belongs under the endangered species funding program of FWS. Secondly, there are limited funds for Migratory Bird Management, and none--I have been told--are available for falcon work in the next fiscal year. Finally, if Peregrine recovery is ruled out for ESA money, then we will not be able to take advantage of the funding provisions with the involved states under section 6 of ESA. We have been looking forward to this source to provide most of the money needed for the actual reintroduction work in the field, and indeed several eastern states are now working with us in this way.

I repeat: Unless your impending policy is modified appropriately or unless some exception can be made for the Peregrine in the East, I very much fear that a death blow will be delivered to the eastern recovery program for this species. There is nothing in the wording of the Endangered Species Act, in regulations promulgated under it, or in the Presidential Order on Exotics that forces the Fish and Wildlife Service to set any policy or take any action contrary to the Eastern Peregrine Recovery Plan as drafted. There are enough "loop-hole" phrases to allow for the adoption of a reasonable and equitable policy with respect to the issues that have been raised about the plan. You can decide for Peregrine recovery in the East, or you can decide against it without the necessity for changing a single word in any of the relevant statutory and executive instruments.

Sincerely yours,



Tom J. Cade
Professor of Ornithology and
Program Director for
The Peregrine Fund



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House of Representatives

THIRTY-THIRD LEGISLATURE

Senate 36

APPENDIX III

COMMITTEE
Member
EDUCATION
NATURAL RESOURCES

June 28, 1977

Mr. Lynn Greenwalt, Director
U.S. Fish and Wildlife Service
U.S. Department of the Interior
Washington, D.C. 20240

Dear Mr. Greenwalt:

I write concerning the final rule on captive, self-sustaining populations (CSSP) of endangered species published in the Federal Register on June 1, 1977. I am very disturbed by the Fish and Wildlife Service's stand not to list any native species in this new classification.

Since 1971 I have been actively pursuing captive propagation of a native subspecies of the peregrine falcon. It was not until 1974 that this bird was listed as an endangered species under the Endangered Species Act of 1973. Since that listing it has been determined that those people who held these endangered birds prior to December 28, 1973 could do with them as they pleased. However, the Endangered Species Act urges cooperation among the Fish and Wildlife Service and interested citizens in the restoration of endangered species. Therefore, I must object to this final rule in the strongest way and request that the Fish and Wildlife Service reconsider this position immediately for the following reasons:

1. The final rule is arbitrary and capricious in that it discriminates against one group of citizens who are interested in native endangered species;
2. The justification in the cover letter to endangered species permit holders of June 10, 1977 states: "The Service has decided, however, not to list any native, Endangered species as a CSSP. Such treatment would seriously weaken their protection, since

animals unlawfully captured in the wild could be falsely described as belonging to a CSSP." By the very nature of this statement there is a very strong inference that those of us breeding captive endangered species are presumed to be guilty of or have intentions of breaking the law. That, I believe, is contrary to the Constitution of the United States.

In addition, may I point out, that the Division of Law Enforcement has the power to inspect the premises and activities of every permit holder. I ask you rhetorically to what extent must the individual permit holder go to prove that his activities are legitimate? This aspect of the rule seems to have been included for the convenience of Law Enforcement;

3. Many breeders of peregrine falcons began their operations prior to the enactment of the Endangered Species Act. It was the intent of most of those breeders, including myself, to aid in the restoration of the species and to use some progeny in the practice of falconry. The latter, by the way, is not precluded by the language of the Endangered Species Act.

However, this ruling removes the incentive for many to continue the propagation of peregrine falcons at the same level. It is my feeling, then, that this rule goes contrary to the intent of the Endangered Species Act.

I wish to point out that you have encouraged us several times to pursue the route of having the peregrine declared a CSSP. We have done this in good faith; and,

4. Finally I feel that the final rule may have been made erroneously, procedurally. When this rule was first proposed on May 5, 1976 there was no mention that it would pertain only to exotic species; it was to include all endangered species. Therefore, we were not given an opportunity to comment on that specific distinction. At the very least there should be a new hearing on the rule before it is implemented so we might be able to make a formal presentation on the matter.

For the most part we have had good relations with the Fish and Wildlife Service in the past, so I hope that you will respond to me that the Service will review this rule immediately. In the meantime I feel compelled to seek counsel to determine what legal recourse I have in regard to this rule.

Sincerely yours,

Frank M. Bond

Frank M. Bond

FMB:jb

APPENDIX IV

SUGGESTED AMENDMENTS

AMENDMENT TO SECTION 3 (page 2)

Sec. 3. For the purposes of this Act—

(1) The term "captive population" means a population subject to regulation by the Secretary of a species of either native or exotic fish, wildlife, or plants which has been determined under this Act to be endangered or threatened and which by means of successful propagation programs, has been bred in such numbers in captivity or controlled environments that it is capable of being perpetuated. (renumber succeeding subsections)

(11) The term "species" includes populations of fish, wildlife, and plants, the members of which freely interbreed and exchange genes in nature, or have the potential for doing so, and are reproductively isolated in nature from other populations of similar organisms.

AMENDMENT TO SECTION 4 (pages 3, 4 and 5)

Sec. 4. (a) GENERAL.—(1) The Secretary shall by regulation determine whether any species is an endangered species or a threatened species, and if so, whether there exists for that species a captive population, because of any of the following factors: * * *

(4) the inadequacy of existing regulatory mechanisms; [or]

(5) other natural or manmade factors affecting its continued existence; or

(6) successful captive propagation in sufficient numbers. * * *

(b) BASIS FOR DETERMINATIONS.— * * *

(2) In determining whether or not any species is an endangered species, or a threatened species, and in determining whether there exists for that species a captive population, the Secretary shall * * *.

(c) **LISTS.**—(1) The Secretary of the Interior shall publish in the Federal Register, and from time to time he may by regulation revise, a list of all species determined by him or the Secretary of Commerce to be endangered species and a list of all species determined by him or the Secretary of Commerce to be threatened species, and whether there exists for such species ^{any} captive population. Each list shall refer to the species contained therein by scientific and common name or names, if any, whether there exists for such species a captive population, and shall specify with respect to each such species over what portion of its biogeographical range it is endangered or threatened.

(d) **PROTECTIVE REGULATIONS—REGULATIONS REQUIRING INFORMATION TO DETERMINE CAPTIVE POPULATION STATUS.**—Whenever any species * * * also been adopted by such state. The Secretary shall require by regulation such records and information as he deems necessary to determine that a captive population of any endangered or threatened species exists and that it maintains its self-perpetuation capacity. In the event that the captive population is found to be in danger of losing its self-perpetuating capacity, the Secretary may determine that a captive population of the species no longer exists.

(e) **SIMILARITY OF APPEARANCE CASES.**—(1) The Secretary may, by regulation, and to the extent he deems advisable, treat any * * * * and further the policy of this Act.

(2) Any species not listed pursuant to Section 4 of this Act, or any member of such species, shall be exempt from regulations promulgated under this subsection if the Secretary finds that adequate documentary evidence, sworn affidavits, or other information is available to verify

species identification ^{and} of the geographical origin of the member of the species in question.

AMENDMENT TO SECTION 6 (page 7)

* * * (d) ALLOCATION OF FUNDS.—(1) The Secretary is authorized to provide financial assistance in the form of direct grants to private non-profit corporations or to qualified individuals for the purpose of supporting endangered species programs approved by him. The Secretary is authorized to provide financial assistance to any state, through its respective State agency, which has entered into * * *.

AMENDMENT TO SECTION 9 (page 11)

* * * (b) SPECIES HELD IN CAPTIVITY OR CONTROLLED ENVIRONMENT.—The provisions of this section shall not apply to any fish or wildlife held in captivity or in a controlled environment on the effective date of this Act, or to the captive bred progeny of any fish or wildlife so held if the captive bred progeny ^{are} ~~is~~ a part of a captive population as defined in this Act, if the purposes of such holding are not contrary to the purposes of this act.

AMENDMENT TO SECTION 11 (page 18)

* * * (1) Not more than five percent of any funds under the control of the Secretary to be expended for the purposes of this Act shall be allocated or spent for enforcement of the criminal or civil sanctions of this Act.

Senator CULVER. Our next witnesses represent a panel from the administration. I wonder if you would be good enough to come up at this time. The panel consists of Mr. Charles Warren, Chairman, Council on Environmental Quality; Mr. Robert Herbst, Assistant Secretary for Fish, Wildlife and Parks, Department of the Interior; and Mr. Jack Gehringer, Deputy Director, National Marine Fisheries Service, Department of Commerce.

I also see that Mr. Greenwalt, Director of the U.S. Fish and Wildlife Service, and who else do we have here?

Mr. SCHREINER. I am Keith Schreiner, Associate Director of Fish and Wildlife.

Senator CULVER. There is one other person.

Mr. SCHREINER. I am joined by Miss Marion Eddy, a member of the Council on Environmental Quality, who went through her confirmation hearing this week. We appreciate your welcoming here.

Senator CULVER. We are very happy to have you.

Mr. GEHRINGER. Mr. Chairman, I have with me Bob Gorrell, who is program specialist with our endangered species program, National Marine Fisheries Service.

Senator CULVER. Before we begin, I would like to thank the Department of the Interior, Mr. Herbst particularly, for the comprehensive briefing material that was prepared for the members of the subcommittee. It is extremely helpful to us and we are grateful.

I think you all have been advised of our time constraints this morning. It is now 11:24. Under the Senate rule, we are obligated to recess the hearing at 12 noon. We do have your complete statements which will be made a part of the record. In light of the fact that we still must hear this morning from a panel of technical witnesses, I wonder if you would please limit your oral testimony to 5 or 7 minutes each?

We will then submit your full written statement for the record. I think the subcommittee would like to have the opportunity to submit written questions to each of you for the record. We will keep the record open for that purpose.

STATEMENTS OF CHARLES WARREN, CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY, ACCOMPANIED BY MARION EDDY, NOMINEE TO THE COUNCIL ON ENVIRONMENTAL QUALITY; ROBERT L. HERBST, ASSISTANT SECRETARY OF THE INTERIOR FOR FISH AND WILDLIFE AND PARKS; JACK W. GEHRINGER, DEPUTY DIRECTOR, NATIONAL MARINE FISHERIES SERVICE, DEPARTMENT OF COMMERCE, ACCOMPANIED BY ROBERT GORRELL, PROGRAM SPECIALIST, ENDANGERED SPECIES PROGRAM, NATIONAL MARINE FISHERIES AND LYNN A. GREENWALT, DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY KEITH SCHREINER, ASSOCIATE DIRECTOR FOR FEDERAL ASSISTANCE, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. WARREN. Mr. Chairman, thank you. I do have a prepared statement which has been submitted and which I would like to have incorporated in the record. (See p. 78.) I do thank you for the opportunity and privilege of presenting the position of the Council on Environmental Quality on the issue of the success of the implementation and administration of the Endangered Species Act of 1973.

Briefly, I think that my statement could not be better abbreviated than by referring to the comments of the chairman of the subcommittee in opening this session. As we have examined the implementation of the act, it appears to us that the charges from some quarters that it is too inflexible to deal with the multitude of the problems and issues which arise under it lies not in the act itself, but frequently in the actions of the particular agency involved.

The lesson that we have been able to draw from the first 4 years of implementation is that the administrative process provided by the act should be given the opportunity to work in a complete fashion before exceptions to the act itself are allowed. The case-by-case review should initially be conducted by the agencies involved to determine whether there is an irresolvable conflict and then the process should be permitted to operate to resolve the conflict.

As the chairman indicated in his opening remarks, there have been 4,500 instances of consultation over the implementation of the act. All of these examples have been successfully resolved, save three, where litigation was used. In two of those three instances, the issues have been satisfactorily resolved one way or the other. The only one which has not been resolved by the administrative and judicial process con-

templated by the act concerns Tellico Dam, which is properly now before the ultimate decision body of this country, the Congress of the United States. You, in your wisdom, have referred that to the General Accounting Office for a report, which report, I understand, is before you and about which you will receive considerable testimony.

We believe that the process that is presently employed is appropriate and one which should not be interfered with. I would like, as a matter of historical analogy, to refer to the experience with the National Environmental Policy Act of 1970.

During its early years of implementation, problems arose to which Congress responded so to the extent that there were over 150, almost 170, as I recall, different proposals for amending NEPA to deal with these allegedly unacceptable results. As we developed experience, all such calls or all such suggestions appeared. To the extent that now given the testimony of all sections of our economy and society at hearings, the hearings that the Council recently held, there is almost universal support of NEPA as it is presently written.

So what I am trying to suggest by that is that we are in a transition phase of a recently enacted statute, the policies and purposes of which Congress wisely set forth, which are now being implemented and they have been implemented in, in my opinion, a surprisingly successful manner, that each stage of the process is working and we suggest that at this particular phase, this interim period, that the Congress exercise constraint and patience.

Senator CULVER. Thank you very much, Mr. Warren.
Mr. Herbst?

STATEMENT OF ROBERT L. HERBST

Mr. HERBST. Thank you very much, Mr. Chairman, Senator Culver, Senator McClure. I appreciate this opportunity to appear before you today on the Endangered Species Act of 1973. Mr. Chairman, let me first compliment you on your opening statement. I thought it was a very excellent summary of the act and its administration so far.

I have prepared for your subcommittee a complete comprehensive file of our activities under each section of the act. In addition to that, Mr. Chairman, you have my comprehensive statement before you. I will summarize that statement. Let me emphasize from the beginning, Mr. Chairman, that we feel that the Endangered Species Act is working well and that its flexibility in regard to critical habitat is adequate.

As you are aware, the act was signed on December 28, 1973. On that date, the Department of the Interior and the Department of Commerce assumed major new responsibilities for assuring the perpetuation of a healthy diversity of plant and animal communities in this country. We believe that significant progress has been made in implementing the law.

The regulations and processes have been established and the program is being administered in a rational and effective manner.

I am pleased to say that this administration is firmly committed to protecting our Nation's wildlife heritage and insuring wise use of our renewable resources. In this regard, President Carter has indicated

that he is firmly committed to the implementation of the Endangered Species Act as a priority environmental program. This administration does not support any attempts to modify or to weaken section 7 of the act, regarding Federal consultation and cooperation. We firmly believe that the act is working and that it can work better. We are certain that it can protect the environment while permitting most developmental projects.

The primary purpose of the endangered species program is to prevent plant and animal species endangerment and extinction that are caused by man's influence on the ecosystem, and to return the species to the point where they are no longer threatened or endangered.

Man's activities threaten a growing number of species with extinction. Some of this is natural, but a substantial number are man caused and can be avoided. There are resource development alternatives, conservation measures, and mitigative techniques that can be implemented which will allow resource utilization to meet man's physical and material needs, and yet insure the natural diversity that we are after.

The process of determining the species status is a thorough one under our current endangered species program. The 1973 act directs that the determination for listing a species as either endangered or threatened throughout all or a portion of its range must be based on the best scientific data available. The act also directs specific consultation and coordination prior to listing, and establishes criteria for the actual determination. The paucity of information available on many species makes the determination difficult and sometimes very time consuming. Over 600 species currently are listed as either endangered or threatened and the status of an additional 2,000 is being reviewed.

Once the species is listed, the prohibitions in the act or in specific regulations immediately come into force. The service has authorized 240 specially trained law enforcement officers who are available to inspect imports and exports of live plants and animals as well as parts and products made from such species and to investigate alleged violations.

Law enforcement, we believe, is a vital part of this program. However, habitat preservation, research, management, and other conservation efforts are essential activities if the recovery of species is to be achieved. Therefore, soon after the listing process is completed a recovery team may be established to identify actions necessary to restore a species. Recovery items are composed of experts from Federal, State, and the private sector. They are presently working on 68 high-priority species.

The 1973 act provided for greater international involvement. It also implemented the Convention on International Trade in Endangered Species of Wild Flora and Fauna. The process of permits for scientific activities involving endangered and threatened species is an important aspect of the endangered species program, particularly in regard to the Convention on International Trade in Endangered Species of Wild Flora and Fauna. We recognize that a problem exists in this area. The average length of time presently required to process a permit is 120 days. It is our intent to reduce this time to 90 days or less.

Mr. Chairman, having recently considered authorizing legislation for the endangered species grant-in-aid program, you are aware that it is one of the more significant aspects of the 1973 act. That significant aspect is the role of State conservation agencies. The law provides a strong Federal commitment for close cooperation and coordination with the State fish and wildlife agencies in the form of cooperative agreements and a grant-in-aid program.

We intend to do everything possible to encourage the States to enter into cooperative agreements. We believe that their expertise, manpower and cooperation are essential to the successful administration of this act.

Critical habitat designation under section 7 of the act and the requirements related to Federal agency cooperation are what is of major interest to this committee.

Senator CULVER. Mr. Herbst, you have a minute to go.

Mr. HERBST. Thank you, Mr. Chairman. Let me conclude by saying that of the thousands of Federal actions on which the service has consulted, only three actions have resulted in judicial review, and of those three, only one has resulted in proposed congressional action. Let me emphasize that point.

This is certainly not an inflexible act. And by far, most problems have been resolved. The act is workable, it is administratively flexible. We have successfully implemented its critical habitat provisions and we have high hopes for eliminating irresolvable conflicts through early consultation and mitigation in the future.

I also strongly believe that the basic purpose of the act is to get species off the list, not on the list. Our goal is to improve and preserve the habitat and to carry on management activities in such a way that adequate populations of wildlife and plant exist, that species are not endangered, threatened or extinct from this planet and from this Nation.

In short, Mr. Chairman, I believe it is entirely appropriate to focus on the positive because that focus is based on fact. We look forward to answering any questions that your committee may have.

Thank you.

Senator CULVER. Thank you very much.

Mr. Gehringer?

STATEMENT OF JACK W. GEHRINGER

Mr. GEHRINGER. Mr. Chairman, members of the subcommittee, I am very pleased to be here to discuss our agency's progress in implementing the Endangered Species Act. You have a copy of the testimony which indicates our program accomplishments, ongoing activities, planning activities, funding, and expenditures to date.

I would like to summarize the points I think are crucial to your time here.

The responsibilities of the Department of Commerce under the act have been delegated to the National Marine Fisheries Service and our basic responsibility is to develop and maintain conservation programs for fish, wildlife, and plants of the marine environment. In

meeting these responsibilities, of course, we work closely with the Fish and Wildlife Service, and interact with the States, other Federal agencies and, in certain situations, foreign countries. It includes such things as administration of the act, research, and law enforcement. Our actions on the State level, as indicated in our testimony earlier this year, have involved establishing mechanisms for the State-Federal cooperative agreements. On the Federal level, we have entered into several agreements with the Fish and Wildlife Service for cross-utilization of enforcement personnel capability, clarification of jurisdictional questions, and the development along with briefings of Federal agencies on section 7 guidelines. We have worked with Customs Service and Treasury on enforcement and to a lesser degree with other agencies.

The principal international activity concerns support through the International Whaling Commission to adopt a 10-year moratorium on the harvesting of large whales. Significant reductions in several of the whale quotas have been achieved.

Also on the international level, we participated in the Conference of Parties to the Endangered Species Convention last fall where several marine species were listed. We provide continuing assistance to Interior with respect to their responsibilities as the management authority and ours joining them in the scientific authority.

Among the several activities, we have proposed regulations jointly with the Fish and Wildlife Service to formalize the procedures for the interagency consultation under section 7. Under our permit regulations, we have processed 32 scientific permit applications, involving sturgeon, sea turtles, and one or more of the whales, and have issued 27 permits. Research involves a number of things which are necessary to arrive at the biological status of the species.

We have conducted research on endangered whales over the past several years, and we expect this to continue. Recently, we have conducted population and habitat surveys of sea turtles in the South-eastern United States. As a part of our sea turtle research, we are developing a net panel to be used with shrimp trawls to reduce the incidental take of sea turtles during shrimp fishing.

We have reported on the development of the Hawaiian monk seal habitat requirements and are presently considering designation of critical habitat for this species. This is the only proposed designation at the present time of critical habitat for those species for which we have jurisdiction. We are considering others, but we have not advanced to that stage.

We have expended an estimated 14 man-years of effort in reviewing information on the Atlantic bluefin tuna, the Hawaiian monk seal, the Caribbean monk seal, the totoaba, and the green, loggerhead, and Pacific ridley sea turtles for possible listing under the act. The Atlantic bluefin tuna was under consideration for listing as a threatened species due to a lack of adequate regulatory mechanisms. This need was eliminated with passage in August 1975 of the Atlantic Tunas Convention Act, which implemented the International Convention for the Conservation of Atlantic Tunas, and we ceased our activities to consider for listing the bluefin tuna as a threatened species.

The Hawaiian monk seal was listed as endangered in November 1976. Final regulations listing the Caribbean monk seal and totoaba as endangered are expected to be published in the near future.

We have just signed an agreement, a memo of understanding, with the Fish and Wildlife Service, defining jurisdiction with respect to sea turtles. Basically, they will have jurisdiction when the turtles are on land; we will have jurisdiction when the turtles are in the water. [Laughter.]

Senator CULVER. What if we find one that flies? [Laughter.] That is probably NASA.

Mr. GEHRINGER. We have had a considerable amount of activity with respect to enforcement. We have investigated 1,135 cases through May of 1977 involving alleged violations of the act. A lot of this involves unlawful interstate commerce in parts and products of endangered species; roughly 2,300 items valued at about \$300,000 have been seized and forfeited, and roughly \$75,000 has been paid in penalties.

The number of investigations initiated in 1977, I might say, we believe will be well below those in 1976. We think this is due, at least, in part, to increased public awareness created by the dissemination of information, pamphlets, and so forth by our people and Fish and Wildlife Service people.

In terms of expenditures, for the first couple of years, we reprogramed money—

Senator CULVER. Who is in charge of the turtle when it is half in and half out of the water?

Mr. GEHRINGER. I think we will probably work it out so we will wait for that decision when it takes place, when he reaches one or the other.

Senator CULVER. Which end of the turtle is on land?

Mr. GEHRINGER. Is this my 7 minutes?

Senator CULVER. You have already exhausted your time. I am working now on the time of the technical panel.

Mr. GEHRINGER. In 1976, appropriations were made available.

Senator CULVER. I think this example may be more important than some of the others you have mentioned. I am sure it is to some of the bureaucrats involved.

Mr. GEHRINGER. We received our first appropriation in 1976. \$400,000. They have gone for a variety of things which are itemized in the accounting. That has been increased for 1977 by an additional \$145,000 for overhead support.

In addition to that, we have reprogramed, primarily from salary lapses in other activities this year, another \$163,000 into sea turtle research. We have nine full-time positions plus support of a number of others within the agency to carry out these responsibilities.

Major activities to be carried out in future years, of course, will be keyed to available funding. Our request for 1978 asked for an increase of \$309,000, and three positions. This is primarily to fund whale research.

In 1979, we propose to expand the sea turtle, whale, seal, and fish research and will consider funding requests to provide for State-Federal cooperative agreements which we don't have.

I will turn now to our involvement under section 7. Although I do not have our consultations with other Federal agencies itemized, we will discuss that information for you as best we can. We do not have tabulations of every specific instance of Federal agency review and consultation for possible impact on endangered or threatened species. As a matter of course, with all of our Fish and Wildlife Coordination Act activities, we review all of these and comment. We have not, to this date, maintained separate records, but we can provide estimates of that. We are also involved with the Coastal Zone Management Act and the review of proposals in this area.

I am unaware of any unresolvable conflicts with respect to consultations we have had. With respect to various proposals to amend section 7 of the act to provide exemption for certain Federal projects, we believe that the present section 7 offers sufficient latitude through the consultation process to remedy problems which may arise. Consultation properly utilized should preserve the interest of the species in question and allow a viable alternative for the initiating Federal agency.

That concludes my summarized statement. I will be pleased to try to answer questions.

Senator CULVER. Thank you very much. We have been advised that we may remain in session until 12:30.

So we will have time for a few questions before the technical panel appears at 12 noon.

Mr. Warren, as Chairman of the Council on Environmental Quality, you have overall responsibility for coordinating and directing the Federal Government's total environmental program. I wonder whether or not you feel you have any recommendations to make to our subcommittee concerning the methods for improving the implementation of the Endangered Species Act, either by the Fish and Wildlife Service or by the National Marine Fisheries Service or any other Federal agencies involved?

Do you have any procedural thoughts or recommendations for us?

Mr. WARREN. Mr. Chairman, I have no recommendations which call for legislative action. Certain presidential directives were contained in the environmental message which was sent to Congress earlier by President Carter which he recognized the need for more expeditious implementation of the act; and in which he specified his support of continuing the case-by-case analysis in the event of a conflict between governmental objectives.

I frankly think that the recent attention by both Departments of Commerce and Interior to resolve jurisdictional difficulties is encouraging. It is somewhat disquieting that those conflicts have not been earlier resolved.

If I might, I would suggest perhaps more vigorous attention to the development of regulations as called for by the act in order that more than guidelines can be available to those charged with implementing other Federal or governmental programs.

I think it might serve some purpose to recognize that in the instance of the grizzly bear and the designation of habitat, that there be a clearer understanding that habitat does not mean that other uses are to be avoided, and that the designation must be done in a very sensitive manner by the responsible agency and involving to the fullest extent possible public participation and interplay.

But in any of the areas which would be called to my attention, none appear to suggest legislative amendment or modification of the act itself.

Senator McCURE. On that latter point. Let me get into this question of the grizzly bear habitat because in your statement, you talk about the extension of the range to the areas formerly occupied. The case in point directly is the grizzly bear controversy.

Are we then under the Endangered Species Act going to try to reestablish all the former ranges of the species that have been eliminated from some areas?

Mr. WARREN. I do not think that that is a necessary interpretation.

Senator McCURE. Is it a possible interpretation?

Mr. WARREN. It is possible that, the extent of that boundary, I should think would be determined by a balancing of interest process.

Senator McCURE. For instance, the bison no longer roams as it once did. Are we going to reestablish the bison range from Canada to Mexico throughout all the immediate West or any portion of it?

Mr. WARREN. There is a bison range, as I understand it. And to the extent that habitat is required to keep the species from being put on the endangered list, yes, we would recognize that habitat and I think it would be appropriate for us to do so. But the act does not require us to extend or to identify critical habitat to mean that which was once enjoyed to the maximum by the species itself.

Senator McCURE. So the test is then whether that habitat is critical to the maintenance of the species, period, not whether or not it is going to be reduced or expanded in its range. Is that correct?

Mr. WARREN. Yes.

Senator McCURE. I would think that, in the case of the grizzly bear, the fact that they do exist in the Yellowstone National Park, and that they are not endangered in the Yellowstone National Park, might resolve this question very quickly. I don't mean to belabor this subject because I think that it is only one aspect and not the particular reason why these hearings were held here today.

Senator CULVER. Mr. Warren, we have, of course, the consultation process under section 7 of the act, and we have the environmental impact statement requirements under NEPA.

Do you think these two processes are redundant? Should NEPA take into consideration, for example, independently the effects of Federal action on endangered species?

Mr. WARREN. We viewed both acts as being quite compatible and having sympathy with each other and specifically the policy objectives of the Endangered Species Act as one of higher importance and significance when in the NEPA process, an endangered species is uncovered or unidentified.

We think the consultation process, the public participation process provided by NEPA is quite compatible and we think they are moving very well together. If I may say so, I hope without offense, we do not believe it would be appropriate or improve the process to any appreciable degree to require a completed environmental impact statement along with the suggestion that critical habitat be identified and designated. We think that NEPA does apply to that, that the environmental assessment is required, but it would not be appropriate or in furtherance of the act to require specifically that an environmental statement itself be prepared in each and every instance.

Senator McCURE. You don't think the designation of habitat is a major Federal action?

Mr. WARREN. It might be, it might not be. I am suggesting that the environmental assessment called for by NEPA should be undertaken to determine if it is a major action, and if so then an environmental impact statement should be prepared.

Senator McCURE. Would you apply the same kind of test on whether or not it is a major Federal action, which has been applied to the Forest Service decisions on timber sales?

Mr. WARREN. I am sorry?

Senator McCURE. Would you apply the same test on whether or not it is a major Federal action that has been applied to the Forest Service decisions on timber sales?

Mr. WARREN. I am not familiar with that situation and know of no reason why an exception to the ordinary NEPA process should apply.

Senator McCURE. Should a timber sale be applied to the same test as should be applied to the designated habitat?

Mr. WARREN. Under NEPA?

Senator McCURE. You think whatever is applied to one should be applied to the other?

Mr. WARREN. That an environmental assessment should be made. Yes.

Senator CULVER. Did the Fish and Wildlife Service enter into consultations with the Tennessee Valley Authority in order to resolve the conflict that has developed between the snail darter and Tellico Dam?

Mr. HERBST. Yes.

Senator CULVER. Would you characterize these negotiations with TVA as cooperative?

Mr. HERBST. Mr. Chairman, I will let Mr. Schreiner, who was there at the time, respond to that question.

Mr. SCHREINER. Mr. Chairman, I would say cooperative to the extent that TVA was willing to consult with us; cooperative to the extent that they were willing to talk about moving the snail darter somewhere else, but not cooperative to the extent that they were willing to consider maintaining the snail darter in its native habitat.

Senator CULVER. Why have we reached an impasse with the Tellico project?

Mr. SCHREINER. Closure of the dam would mean that both the snail darter and its habitat would be jeopardized, and its critical habitat would be modified. Those are the two issues in section 7 which all Federal agencies are mandated not to do.

Senator CULVER. In your judgment, is Tellico a good example of the need for greater flexibility in the act?

Mr. SCHREINER. No, sir. I do not think it is a good example for a number of reasons. Tellico was initiated and well down the road before the endangered species was found. So we were dealing with an after-the-fact situation. As a matter of fact, the three confrontations we have had out of 4,500, have all been retroactive situations. Certainly they are atypical in that sense.

Senator CULVER. What kinds of project modifications have been used to avoid conflicts between the act and Federal projects?

Mr. SCHREINER. I am sorry. I am afraid I do not understand the question.

Senator CULVER. What kinds of modifications have been made in previous instances to avoid conflicts between the act and the Federal projects?

Mr. SCHREINER. Mr. Chairman, about every conceivable kind of thing you can imagine, from the agency deciding that they had an alternative project site that was better, to a modification of the project so that it did not adversely affect the critical habitat or did not jeopardize the continued existence of the species.

In the 4,500 consultations we have had, about every conceivable situation has occurred. In many cases, we have found that the project would not adversely affect the species and that ended the whole process there. In a few cases, one in particular that I recall, we simply did not carry out the activity.

Senator CULVER. Suppose we have a situation where even with consultation and every imaginative, creative effort to reach some mutually acceptable modification, a potential conflict over a Federal project is not resolvable. How should the Congress and the administration deal with such a problem?

Mr. HERBST. Mr. Chairman, then I believe that Congress should deal with it on a case-by-case basis, and represent the people of this country as to which is the more important aspect. But I think in looking at the Tellico situation, it involves more than just the value of the snail darter. I believe that is important in and of itself, but it represents the broader question of whether or not the Tellico project is a valid use of the Tennessee River.

Senator CULVER. Cost effectiveness?

Mr. HERBST. Yes, cost effectiveness.

Senator CULVER. We have the GAO study which is now underway.

Mr. HERBST. You have the study before you in which they make that specific recommendation. They do not come down on the side of the snail darter or the dam, but say it is a legitimate question to be weighed by the Congress and that you ought to weigh the complete value of the project; also that many plants and animals aside from their value as species are also indicators of many other types of values.

They are indicators of the environmental quality; they may even be indicators of human life. It is similar to the canary in the coal mine; similar to the question that we faced on DDT. The regulations that were placed on DDT were because of its effect on animal life and the fact that it was found in the tissue of every living thing.

The problem it caused in fish and wildlife was an indication then that it was going to create a problem for human beings. So many times these are indicators of the environmental quality of human life.

Senator CULVER. Even though the numbers to date do not necessarily indicate this to be a particular problem at the present time, let's just suppose that a case-by-case review by Congress would prove to be impracticable or unduly burdensome, what is your recommendation concerning general amendment to the Endangered Species Act permitting a balancing of economic, energy, and social factors with the protection of the endangered species?

Mr. HERBST. Mr. Chairman, I believe it is premature. It is not burdensome at the moment as we all three said in our statements. There have been over 4,000 consultations. Only three have reached the judicial review. Only one has reached the attention of Congress. We expect in the next fiscal year, that the number of consultations will reach approximately 10,000.

At the present time and in response to one of the questions that your committee has asked, we have responded with a listing for you of the potential conflicts that we know about at the present time. There are about 50, but in no way does that indicate that we will not be able to resolve most of those 50 potential conflicts.

I see the changes that need to be made administratively and legislatively in this order. In terms of the legislative changes that need to be made, there are three. One, there is not a grant program for the plant community. I would like to see the act amended in that regard. No. 2, I think we need a clearer definition of State agencies. No. 3, I think that there needs to be a way of amending section 6 of the act so that State agencies can come under cooperative agreements where they do not have full authority over all endangered species that might occur in their State. A fish and game agency may not have authority over insects that happen to be endangered, but we would like to have a cooperative agreement with the agency for other species.

On the administrative area, three things need to be done: One, the time required to process permits, which I think I indicated takes 120 days now, needs to be reduced. We hope to reduce it to 90 days or less. Second, without violating OMB clearance, we are considering changes as far as staffing and funding is concerned in order to adequately carry out the act or better carry out the act in terms of our 1979 and future budget requests. Third, I think earlier consultations with Federal agencies will lead to modifications and adjustments so we won't run into potential conflicts. In conjunction with this the President's directives on determining critical habitat on lands administered by Federal agencies is well underway. Our guidelines are being reviewed with the Department of Commerce, then it will go to the other agencies. When that is implemented, we estimate it will take about 2½ years to complete the job.

Senator McCLURE. All three of you have indicated that there is sufficient flexibility in the act to administer it. All of you have on the other hand said when that flexibility isn't sufficient, it comes back to Congress. Why have you concluded that there is sufficient flexibility

for the administration up to the point where you can't resolve it and then Congress must resolve it?

If, as a matter of fact, you resolve it within the administration, how can you say that there is sufficient flexibility?

Mr. WARREN. It would appear that based upon the evidence available, that the overwhelming number of such conflicts are resolved administratively or judicially and that only the most difficult—

Senator McCURE. But the fact that it is difficult doesn't mean the flexibility is there. It means it is difficult. It means the administration cops out and throws it back on the Congress.

Mr. WARREN. Except in our opinion, that is the appropriate place unless the process is unduly burdening Congress with such decision.

Senator McCURE. Why is it the appropriate place?

Mr. WARREN. Because the conflict we have exists between several public purposes which Congress itself has established. The policy and purpose of the Endangered Species Act is a legislative determination. If there is a policy and purpose in another act which Congress has established, which appears to conflict with the Endangered Species Act, to the extent that it cannot be resolved successfully, administratively, or judicially, yes. We believe it properly is in your jurisdiction as the representatives of the people.

The snail darter has been considerably maligned. I think unfairly, and unreasonably in the media, with respect to Tellico Dam. The act does bring the attention of Congress to the whole question of what is happening in that particular area and reveals that there are other considerations of great magnitude which has affected not only the snail darter, but which has implications for all species, including the human species, which need attention.

We think the attention is properly, in this instance congressional. I think you come to that conclusion yourself when you requested the General Accounting Office to study the situation and report to you. The report itself particularly emphasizes the nature of the problem as one to which Congress uniquely should address.

Senator McCURE. What you in effect have said is because Congress has created the conflict, Congress must solve it.

Mr. WARREN. They are vital. They are socially, economically, and politically vital.

Senator McCURE. One of the ways in which Congress could resolve the conflict is to provide the mechanism by which the administrative agency solves the conflict.

Mr. WARREN. I respectfully suggest that it would be so complex and have so many factors as to be almost politically unsupportable. It would depend upon the species itself, the role of the species in the environmental ecology, the extent of the range involved. Then you have to—well, I think my point is made.

There are so many variables. I would be very reluctant to have in the administrative process juggling and weighing, particularly if the juggling and weighing is done by the development agency.

Senator McCURE. I assume the administration or the Congress can determine who the juggler and weigher is and who the resolver is. There are an awful lot of tough questions that the administration has

to solve that Congress does not do. Let me give you an example of my resistance to the idea that Congress can resolve the problem.

We don't do very well doing what we do now. We spent 2 hours the other day deciding whether the cities ought to have a sewer charge and determined how to maintain the sewer systems. Why should we spend 2 hours in the Congress trying to make up in our minds on what essentially is a local decision? We are now spending unending hours trying to legislate subject by subject, product by product, in terms of items like saccharin. Why should the Congress be involved in making the ultimate decision on saccharin? Why shouldn't there be the guidelines and the policies set out in the law? The administrative agencies should then follow those guidelines and policies and make a decision with an adequate review in the courts to determine whether or not there has been an abuse of discretion?

Mr. WARREN. I respectfully suggest the question of whether or not a species which is endangered or threatened is a concern of national and greater than a national importance should not be left to a local consideration.

Senator McCLEURE. Is isn't a local consideration. I don't think I suggested that at all. I suggested that it is within the Federal Government administrative agency, where the expertise resides and where almost every other decision that affects us is ultimately made within the broad guidelines and frameworks established by Congress, that these decisions should be made.

Congress certainly has the right to overrule it. We have now, if I recall correctly, some 25,000 petitions for registration of plant and animal life. How many of those—you say only three have resulted in any kind of controversy and only one of them is now back to Congress for decision—are going to be back here for a decision? I think we are going to find ourselves burdened in the future with a great number of those. Mr. Schreiner indicated a moment ago that because the statute says that if a species is endangered, and that habitat is critical, that the Federal Government agencies cannot permit a modification of that habitat.

He said that it is an action which the Federal agencies are mandated not to do. That isn't the sign of flexibility. That is a sign of saying if you can find a way to avoid that consequence, we will find a way to avoid it, but we don't make the judgments weighing this against that. That is a judgment process, isn't it?

Mr. SCHREINER. Mr. Chairman, I would like to respectfully disagree that I said no modification of the critical habitat was legal under section 7. If I did say that, I didn't mean to imply that.

As a matter of fact, without modification of the critical habitats of many endangered species, they are doomed to extinction. I think what we are talking about, Senator, is modification that would be adverse either to the continued existence of the species or adverse to its basic habitat in any particular form. Many kinds of modifications would not only not harm that habitat, but would in fact be beneficial to it.

Senator McCLEURE. I accept your clarification of what I had said. I had understood you to say it exactly the way you have explained it now,

but if there is an adverse affect upon an endangered species or a threatened species or upon its critical habitat in a manner that would threaten its continued existence, then the Federal agencies in your words are mandated not to take that action.

Mr. SCHREINER. Yes, sir, but that does not necessarily mean that the action that they are undertaking stops. It simply means they do it in a different location, in a different way, at a different time of the year, whatever.

Senator McCURE. If, as a matter of fact, however, they cannot find a way to do it at a different location, or in a different manner, then they are mandated not to do it.

Mr. SCHREINER. Yes; but the facts suggest we have found a way nearly every time.

Senator McCURE. I understand that. That is not the question. My question is not how do you resolve the easy questions. My question is how do you resolve some of the tough ones.

Mr. SCHREINER. Perhaps some of the tough ones should not be resolved.

Senator McCURE. Perhaps not. This means, as you said, that they are mandated not to be solved; therefore, the act in that instance becomes totally rigid and inflexible, in your judgment.

Mr. SCHREINER. Perhaps in the occasional instance, that is the way it should be, and I think, that is what the Congress intended.

Senator McCURE. Perhaps it should be. I am only saying that we shouldn't say it is not a result of the act. As a matter of fact, it is the result of the act.

Mr. SCHREINER. Yes; I think it is. I think it was the intent of Congress to do that.

Senator McCURE. In some instances, the act is not flexible?

Mr. SCHREINER. In the rare instance; yes.

Senator McCURE. The question that we have to resolve then, is whether or not there should be a flexibility or whether or not there should be a resolution process for those otherwise irresolvable conflicts. Will the endangered species in every instance in those irresolvable conflicts always invariably, without exception, be the primary consideration?

You say yes. There are others who say yes; and others who say no. That is the reason we are having the hearings.

Mr. Warren, in your statement, you say—as we examine the implementation of the act—it appears that the inflexibility is not in the legislation, but sometimes in the agency involved.

What inflexibility, what agency?

Mr. WARREN. Let's take the example which has received some discussion this morning: that is, Tellico Dam. The agency involved, the Tennessee Valley Authority, knew in 1973 of the plight of the snail darter and was advised of the possibility that the snail darter was an endangered species.

Its attitude was rather than attempting to engage in the consultation process, which has been described here this morning, it appeared to be one of intransigence; that is, (a) the position appeared to be, one, first, it is not a species within the meaning of the act; two, it is

not endangered and; three, that the only thing we are obliged to do is determine if there is another suitable habitat that can be found rather than engaging early on and in good faith negotiations with Interior over the species itself to see if there were project modifications or mitigation actions that could have been taken.

In fact, this intransigence of the agency continued until there was no alternative but judicial relief and it was only in January of this year that the decision issued, a period of over 3½ years, and I respectfully suggest that if the agency involved had good faith implemented, complied with the policies and purposes of the Endangered Species Act, that Congress provided and required, that this problem would not be before Congress today. You would not even have this example before you.

That was my point with NEPA. When NEPA was passed, there were a whole host of suggestions in Congress, that we would have to amend it, repeal it, alter. Then with experience, when the agencies started to implement it, they discovered it was a worthwhile productive purpose and all such suggestions have disappeared.

Senator McCLURE. NEPA is a balancing process. In the instances where you can't find a way to avoid a conflict, the conflict is always resolved one way, which may or may not be desired.

Mr. WARREN. The consultation process itself permits this balancing to take place in a different way, perhaps. It has worked successfully and the only instance where it has been unsuccessful is where history indicates you have an intransigence agency, TVA.

Senator CULVER. What project modifications in the project would have prevented the destruction if the snail darter's critical habitat?

Mr. WARREN. I don't know. I think the General Accounting Office's report may suggest that.

Senator McCLURE. Let's pursue Tellico for 1 minute. As I understand it, there was an environmental impact statement. It was tested. It was turned down. They then modified the environmental impact statement. It, too, was tested and the court supported it. I am not an expert on the *Tellico* case, but that is my understanding of the record before the court.

Mr. WARREN. You know, I am not prepared to sit here and to tell you what possible solutions could be merged with, given 3 years of good faith consultation between the agencies involved. I find it very difficult to believe that whereas other agencies had success with equally difficult problems, that similar success could not have been experienced in this particular instance.

Ms. EDDY. Concerning the amount of money which was spent in the construction of the TVA project, regardless of whether or not the TVA could have built the actual dam in compatibility with the snail darter, TVA was accelerating and continuing—

Senator CULVER. Excuse me, could you use the microphone.

Ms. EDDY. TVA was continuing, accelerating the construction aspects of the project afterwards. So in terms of the amount of money which may have been spent, some of which may not be recovered, this perhaps is expenditure which could have been weighed.

The GAO believes that about \$68 million of that money that has been spent on the project can be used by the local communities. How-

ever, the TVA in its construction worked in the construction area, the location of the primary spawning beds of the snail darter. It does not seem to me particularly good faith activity there.

Adding to this, the controversy over the TVA may have played a very useful role in highlighting the fact that there are over 60 dams by the TVA in the Tennessee Valley river system. This particular kind of free-flowing river habitat which has many useful uses for the local citizens, that habitat is disappearing along with the snail darter. So the court case has brought to the public light and to the Congress to make what is to me essentially a political decision.

I believe that when we talk of balancing, we are nearly always talking about politics, that when you get a whole bunch of agencies, each concerned with their own turf, their own missions, that indeed you are going to get a worse bureaucratic snarl than usual if you always attempt to have them be making political decisions.

Senator McCLURE. I don't disagree with that question. But look at the fact that this morning I had four committee meetings and two conferences going on at the same time, yet you want us to make case-by-case decisions. I sometimes wonder how well we do it. I would think that you share that skepticism about the ability of the Congress to appropriately act in all instances.

Ms. EDDY. I believe that Congress might adopt a wait-and-see attitude and—

Senator McCLURE. The wait and see suits you, because you don't want the decision. You want the negative decision. So the wait and see suits you.

Ms. EDDY. If you continue to have a ratio of 4,500 cases resolved administratively per one that comes before the Congress, if this kind of ratio continues, I suggest that Congress will not be too greatly burdened and in any case where it comes before you, as in the Tellico Dam, you may find it deserves reconsideration for many other reasons as well.

Senator McCLURE. If we had to make one out of every 4,500 decisions—the bureaucracy makes, you would have to have a lot more of us than there are. I might just mention, in conclusion—and we must get to the other panel—this question and ask for your comment. The judge in the *Tellico* case, as I recall, made the comment that the decision by the Department of the Interior to place the snail darter on the endangered species list and that portion of the Tennessee River as a part of the critical habitat, that endangered species was in itself absolutely controlling and that if there were to be any flexibility or any discretion allowed in any other agency, or by the court, that decision by the Secretary of the Interior would have to be changed; that the decision by the Secretary of the Interior on those two matters was absolutely, totally controlling and there was no discretion, no flexibility.

Maybe that is desirable, as you indicate it is.

Mr. HERBST. To respond to that, it is not a flexible type of decision. The decision must be based on biological facts; that is whether or not a critical habitat is in jeopardy, and it was determined that biologically, yes, it was.

Senator McCLURE. Therefore, on those terms and we would on the fact of biological habitat questions, there is no flexibility in the act.

Mr. HERBST. It is either critical habitat or it is not.

Senator CULVER. I just have one question for you and then we would like to submit to you for the record.

When do you expect to begin the designation of the critical habitat with regard to marine species, and do you expect this process to create problems for the exploration and development of offshore oil? What kind of problems do you see in attempting to designate critical habitat for marine species?

Mr. GEHRINGER. At the present time, we are in the process of proposing critical habitat for only one species, the Hawaiian monk seal. Undoubtedly during the subsequent years, with the designation of certain sea turtles as either threatened or endangered, we will be called upon to review these particular issues. We will expect to designate areas as appropriate.

There is a potential for conflict with respect to the offshore development. Our principal concern here with the marine species is endangered whales which are found in areas of offshore development. We have consulted, and our concerns primarily involved migratory routes of the whales. Of course, any major spill could cause problems. We have not addressed in any detail specific problems posed endangered and threatened species by offshore development.

Senator CULVER. Thank you, very much.

We are very happy to have had you here this morning. We will be submitting additional questions for the record.

Senator McCLURE. I might like to say for the record that I very much appreciate the briefing material that was provided to us. I think that is the best I have seen. It is the kind that usually the witness has and the members of the committee do not have. I very much appreciate having it.

[The prepared statements of Mr. Warren, Mr. Herbst, and Mr. Gehringer follow:]

STATEMENT BY CHARLES WARREN
CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY

BEFORE THE

SUBCOMMITTEE ON RESOURCE PROTECTION OF THE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

JULY 20, 1977

MR. CHAIRMAN,

I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY TO DISCUSS THE IMPLEMENTATION OF THE ENDANGERED SPECIES ACT OF 1973, AND IN PARTICULAR, SECTION 7 OF THE ACT WHICH PROVIDES FOR THE DESIGNATION OF CRITICAL HABITAT. THE COUNCIL ON ENVIRONMENTAL QUALITY WAS INVOLVED IN THE DEVELOPMENT OF THE ENDANGERED SPECIES ACT OF 1973.

THE PURPOSES OF THE ACT AS SET OUT BY CONGRESS ARE:

"...TO PROVIDE A MEANS WHEREBY THE ECOSYSTEMS UPON WHICH ENDANGERED AND THREATENED SPECIES DEPEND MAY BE CONSERVED, TO PROVIDE A PROGRAM FOR THE CONSERVATION OF SUCH ENDANGERED SPECIES AND THREATENED SPECIES, AND TO TAKE SUCH STEPS AS MAY BE APPROPRIATE TO ACHIEVE THE PURPOSES OF THE TREATIES AND CONVENTIONS SET FORTH IN SUBSECTION (A) OF THIS SECTION." WE BELIEVE THESE PURPOSES ARE BEING MET BY THE PRESENT INTERPRETATION AND IMPLEMENTATION OF THE ACT.

PRESIDENT CARTER HAS TAKEN A STRONG STAND FOR THE PROTECTION OF ENDANGERED WILDLIFE AND THE PRINCIPLES UNDERLYING THE ENDANGERED SPECIES ACT OF 1973. IN HIS ENVIRONMENTAL MESSAGE TO THE CONGRESS ON MAY 23, THE PRESIDENT SAID, "MANY LAND AND WATER DEVELOPMENT PROJECTS CAUSE EXTENSIVE DAMAGE TO FISH AND WILDLIFE HABITAT. MY ADMINISTRATION WILL ENSURE TIMELY IMPLEMENTATION OF THE MITIGATION FEATURES REQUIRED BY THE FISH AND WILDLIFE

COORDINATION ACT TO MAKE UP FOR SUCH LOSSES. FURTHERMORE, TO HASTEN THE PROTECTION OF THREATENED AND ENDANGERED SPECIES, I AM DIRECTING THE SECRETARIES OF COMMERCE AND INTERIOR TO COORDINATE A GOVERNMENT-WIDE EFFORT, AS REQUIRED BY THE ENDANGERED SPECIES ACT OF 1973, TO IDENTIFY ALL HABITAT UNDER FEDERAL JURISDICTION OR CONTROL THAT IS CRITICAL TO THE SURVIVAL AND RECOVERY OF THESE SPECIES. THE PURPOSE OF THIS PROGRAM IS TO AVOID THE POSSIBILITY THAT SUCH HABITATS WILL BE IDENTIFIED TOO LATE TO AFFECT FEDERAL PROJECT PLANNING. MAJOR PROJECTS NOW UNDERWAY THAT ARE FOUND TO POSE SERIOUS THREAT TO ENDANGERED SPECIES SHOULD BE REASSESSED ON A CASE-BY-CASE BASIS."

OUR EXPERIENCE SHOWS THAT THE VAST MAJORITY OF POSSIBLE CONFLICTS BETWEEN ENDANGERED SPECIES AND FEDERAL PROJECTS HAVE BEEN RESOLVED THROUGH THE CONSULTATION PROCESS. THE ENDANGERED SPECIES OFFICES OF THE U.S. FISH AND WILDLIFE SERVICE HAS HAD OVER 4500 INQUIRIES AND CONSULTATIONS UNDER THE ENDANGERED SPECIES ACT. IN ADDITION, THE AGENCY HAS PROVIDED OVER 125 FORMAL BIOLOGICAL OPINIONS FOR OTHER GOVERNMENT AGENCIES ON THE POSSIBLE EFFECTS OF PUBLIC PROJECTS ON ENDANGERED SPECIES. ONLY THREE ENDANGERED SPECIES CASES HAVE BEEN IRRESOLVABLE THROUGH ADMINISTRATION ACTION AND HAVE OF NECESSITY COME TO THE COURTS FOR DISPOSITION. OF THE THREE CASES THAT HAVE BEEN TAKEN TO COURT, ONLY ONE REMAINS A MAJOR CONFLICT TODAY.

THE FEDERAL HIGHWAY ADMINISTRATION WAS ENJOINED FROM COMPLETING AN INTERSTATE HIGHWAY BECAUSE IT WOULD DISRUPT CRITICAL HABITAT OF THE MISSISSIPPI SANDHILL CRANE. SINCE THE COURT FINDING, THE DIFFICULTY IS WELL ON THE WAY TOWARD RESOLUTION. DURING THIS PAST WEEK, FISH AND WILDLIFE OFFICIALS HAD BEEN MEETING WITH JACKSON COUNTY, MISSISSIPPI OFFICIALS AND HAVE COME TO THE AGREEMENT THAT 1900 ACRES SURROUNDING ONE INTERCHANGE WHICH HAS BEEN IN QUESTION SHOULD BE PURCHASED AS PART OF A NATIONAL SANDHILL CRANE REFUGE. IF THE DEPARTMENTS OF TRANSPORTATION, INTERIOR AND THE STATE AGREE, THIS CASE WILL BE SATISFACTORILY RESOLVED.

THE MERAMEC LAKE PARK CASE CONCERNED THE INDIANA BAT. THE CASE WAS RESOLVED IN FAVOR OF THE CORPS OF ENGINEERS AND THE HABITAT INVOLVED WAS NOT FOUND TO BE CRITICAL FOR THE BAT'S SURVIVAL. SINCE THE CASE WAS SETTLED, THE ENTIRE PROJECT HAS BEEN SCRAPPED FOR ECONOMIC AND ENVIRONMENTAL REASONS.

THE LAST CASE AND THE ONLY ONE THAT HAS NOT BEEN RESOLVED IS THE TELlico DAM CASE IN TENNESSEE. THIS CASE HAS A LONG HISTORY, WHICH I AM SURE YOU WILL EXPLORE IN DETAIL IN THE COURSE OF THESE HEARINGS. THE COUNCIL BELIEVES THAT THE CONFLICT ARISING IN THIS CASE COULD HAVE BEEN AVOIDED HAD SUFFICIENT INFORMATION AND THE PROPER

STUDIES BEEN DONE EARLY IN THE PROJECT'S HISTORY AND ALTERNATIVE SOLUTIONS EXPLORED. AS WE EXAMINE THE IMPLEMENTATION OF THE ACT, IT APPEARS THAT THE INFLEXIBILITY IS NOT IN THE LEGISLATION, BUT SOMETIMES IN THE AGENCY INVOLVED.

IN ADDITION TO THE FISH AND WILDLIFE EXPERIENCE, THERE ARE NUMEROUS INSTANCES WHERE THE ENDANGERED SPECIES ACT HAS WORKED WITHOUT THE INTERVENTION OF THE DEPARTMENT OF THE INTERIOR. THIS IS PARTICULARLY TRUE WHEN THE FOREST SERVICE IS INVOLVED. THE FOREST SERVICE WITHIN THE PAST TWO YEARS HAS GONE FAR TO EXAMINE ITS PROGRAMS IN LIGHT OF THE ENDANGERED SPECIES ACT AND TO MAKE ADMINISTRATIVE ADJUSTMENTS WHERE NECESSARY TO MEET THE MANDATE OF THE ACT.

THE LESSON FROM OUR FOUR YEARS OF IMPLEMENTATION TO DATE IS THAT THE ADMINISTRATIVE PROCESS SHOULD BE GIVEN THE OPPORTUNITY TO WORK IN A COMPLETE FASHION BEFORE EXCEPTIONS TO THE ENDANGERED SPECIES ACT ARE ALLOWED. THE CASE-BY-CASE REVIEW SHOULD INITIALLY BE CONDUCTED BY THE AGENCIES INVOLVED TO DETERMINE WHETHER THERE IS AN UNRESOLVABLE CONFLICT BETWEEN ENDANGERED SPECIES PROTECTION AND SOME OTHER VALID PUBLIC PURPOSE.

THE ENDANGERED SPECIES ACT OF 1974 REPRESENTS A FIRM COMMITMENT ON THE PART OF THE CONGRESS AND THE AMERICAN PEOPLE THAT OUR WILDLIFE HERITAGE SHOULD NOT BE FURTHER

DIMINISHED FOR FUTURE GENERATIONS WITHOUT THOROUGH EXAMINATION AND ANALYSIS OF THE ULTIMATE PUBLIC GOOD. EXTINCTION OF A SPECIES IS A FINAL AND IRREVERSIBLE ACTION. THE ENDANGERED SPECIES ACT RIGHTLY TRIES TO MINIMIZE THE LIKELIHOOD OF THIS EXTINCTION BY PROTECTING ENDANGERED SPECIES HABITAT. IN THE LONG RUN HABITAT PROTECTION IS THE ONLY WAY THAT WE WILL PRESERVE WILDLIFE SPECIES.

THIS DOES NOT MEAN THAT THE ACT IS WITHOUT PROBLEMS DESIGNATION OF INDIVIDUAL CRITICAL HABITAT IN SOME CASES CAN BE PARTICULARLY DIFFICULT, EXPECIALLY WHEN THE HABITAT FOR THE SPECIES MAY EXIST BUT THE SPECIES HAS DISAPPEARED THROUGH POISONING, HUNTING, OR SOME OTHER CONTROLLABLE HUMAN ACTIVITY. THE QUESTION IN THESE CASES BECOMES HOW MUCH OF THE HABITAT SHOULD BE PERMANENTLY PRESERVED WITH THE INTENTION OF ALLOWING THE SPECIES TO REOCCUPY ITS FORMER RANGE. THIS APPEARS TO HAVE BEEN THE CASE IN DESIGNATION OF GRIZZLY BEAR HABITAT. CRITICAL HABITAT DESIGNATION MUST BE DONE WITH CARE AND THOROUGH EXAMINATION AND OPPORTUNITY FOR COMMENT BY THE PUBLIC.

THE PRESIDENT RECOGNIZED THE NEED TO DEFINE CRITICAL HABITAT FOR ONGOING PROJECTS IN A SHORT TIME FRAME, AND HAS DIRECTED GOVERNMENT AGENCIES WITH LAND MANAGEMENT RESPONSIBILITIES AND POTENTIAL ENDANGERED SPECIES

CONFLICTS TO CONDUCT AN ANALYSIS OF CRITICAL HABITAT ON THEIR LANDS AND TO PROVIDE THE INFORMATION TO THE DEPARTMENT OF THE INTERIOR FOR EARLY DECISION. THIS ACCELERATED PROGRAM SHOULD HELP SOLVE PROBLEMS FOR THE FUTURE. IN THE INTERIM, HOWEVER, THE POSSIBILITY REMAINS THAT INDIVIDUAL CASES MAY ARISE WHERE FEDERAL PROGRAMS WILL HAVE TO BE REEXAMINED IN LIGHT OF THE ACT. THE ULTIMATE VALIDITY OF THE ACT NEED NOT BE SACRIFICED TO OVERCOME THIS BRIEF TRANSITION PERIOD WHILE THE ACT IS IMPLEMENTED.

IN SUMMARY, MR. CHAIRMAN, IT IS THE POSITION OF THE COUNCIL ON ENVIRONMENTAL QUALITY THAT THE ENDANGERED SPECIES ACT OF 1973 IS A SIGNIFICANT MILESTONE IN THE PROTECTION OF AMERICAN WILDLIFE AND THAT THE CRITICAL HABITAT PROVISION IS ITSELF ONE OF THE MOST IMPORTANT SECTIONS OF THE ACT. WE DO NOT BELIEVE THAT ANY CHANGE IS NECESSARY IN THE ACT TO ACCOMMODATE SPECIFIC INSTANCES WHERE THE ACT AND OTHER PUBLIC GOALS COME INTO CONFLICTS.

THANK YOU FOR THE OPPORTUNITY TO APPEAR AND TESTIFY BEFORE YOU ON THIS IMPORTANT MATTER. I WILL BE HAPPY TO ANSWER ANY QUESTIONS.

STATEMENT OF ROBERT L. HERBST, ASSISTANT SECRETARY OF THE INTERIOR FOR FISH AND WILDLIFE AND PARKS, BEFORE THE SENATE, ENVIRONMENT AND PUBLIC WORKS COMMITTEE, SUBCOMMITTEE ON RESOURCE PROTECTION, ON THE ENDANGERED SPECIES ACT OF 1973, OVERSIGHT HEARINGS, JULY 20, 1977.

Mr. Chairman, we appreciate this opportunity to discuss with you and members of the Subcommittee the Fish and Wildlife Service's progress in implementing the Endangered Species Act of 1973.

You have asked that we present a general overview of administration of the Act, and in particular, discuss the consultation process under section 7 and the Administration's views on the need for amending the Act. We are pleased to address these aspects of the program. In addition to the information contained in my statement, you have been provided with a briefing book covering the Fish and Wildlife Service's activities under each section of the Act. I hope this material will be of value to you throughout this and future deliberations on the Endangered Species Act.

As you are aware, Mr. Chairman, on December 28, 1973, the Endangered Species Act was signed into law. On that date the Departments of the Interior and Commerce assumed major new responsibilities for assuring the perpetuation of a healthy diversity of animal and plant communities. On that date an estimated 150,000 endangered and threatened animal and plant species throughout the world, both listed and unlisted, became a potential Federal responsibility.

The increased responsibilities under the new Act far surpassed the 1969 Endangered Species Conservation Act. I believe significant progress has been made in implementing this important law, with the establishment of new systems, regulations and processes. The Endangered Species Program is being administered in a rational and effective manner.

I am pleased with the job that has been done. The Fish and Wildlife Service has my support and that of the Secretary in continuing with the present program direction and effort. Furthermore, I am pleased to say that this Administration is firmly committed to protecting our nation's wildlife heritage and insuring wise use of our renewable natural resources. In this regard, implementation of the Endangered Species Act is a priority environmental program. In his May 23rd Environmental Message, President Carter stated that "...to hasten the protection of threatened and endangered species, I am directing the Secretaries of Commerce and Interior to coordinate a governmentwide effort, as required by the Endangered Species Act of 1973, to identify all habitat under Federal jurisdiction or control that is critical to the survival and recovery of these species. The purpose of this program is to avoid the possibility that such habitats will be identified too late to affect Federal project planning. Major projects now underway that are found to pose a serious threat to endangered species should be assessed on a case-by-case basis". As a supplement to that statement, the President sent a special message to the Secretaries of Interior, Agriculture and Defense and the Chairman of the Tennessee Valley Authority directing that "[F]ederal programs

should be coordinated in a way that will provide timely assistance to the Secretary of the Interior and the Secretary of Commerce in determining the habitat which is critical for the survival and recovery of those endangered and threatened species." The President directed each agency to:

- identify, in consultation with the Secretary of the Interior or Commerce, as appropriate, areas of land under their jurisdiction which appear to be critical to the survival and recovery of species;
- provide to the appropriate Secretary information concerning the areas identified as appearing critical;
- exercise caution in proposing any modifications of the habitat until the Secretary of the Interior or Commerce determines whether it is critical habitat; and
- encourage States and private citizens to assist in identifying areas under Federal control which appear critical.

The President directed us to develop timetables for implementation of the review and designation of critical habitat, and to provide guidance and coordination to assure compliance.

We have taken a number of steps to carry out the President's directive which I will address in more detail later in this presentation. I would like to emphasize here that the Administration is firmly committed to implementation of the Endangered Species Act, and particularly the

provisions related to section 7, Federal agency consultation and cooperation. Thus, this Administration does not support any attempts to modify or weaken the provisions of section 7. We firmly believe that the Act is working. We have given it a hard test, and we are certain that it can protect the environment while permitting appropriate development.

COMPARISON OF PROVISIONS OF 1969 AND 1973 ACTS

To better understand what the Endangered Species Act of 1973 means in terms of the Federal commitment, let me briefly compare some of the major authorities and responsibilities of the 1969 Act and the present law.

The Endangered Species Conservation Act of 1969 was hailed by many conservationists and environmentalists as a landmark in the preservation and perpetuation of our living natural resources. It has been said that the 1969 Act established the United States as the world leader in this endeavor. What did the 1969 Act do to deserve such acclaim? Basically, it authorized the Federal listing as endangered of any animal determined to be threatened with worldwide extinction, the protection of such species to be afforded through prohibition on importation; an authorization for habitat acquisition in the United States, and the promotion of sound management practices in this and other countries. The 1973 Act authorizes the Federal listing of plants in addition to animals and covers animals not previously considered (arthropods and other invertebrates). The 1973 Act provides considerable flexibility

in considering the status of a species and in affording to it commensurate protection in all or part of its range by listing it as either threatened or endangered. In effect, it is no longer necessary to wait until the species reaches that most critical level in its existence--threatened with extinction throughout its range--before some action is taken. We now have a much needed management tool; that is, authority to act before a point of no return is reached.

PURPOSE OF 1973 ACT

The primary purpose of the Endangered Species Program as directed by the 1973 Act is to prevent plant and animal species endangerment and extinction caused by human influence on the environment, and to return the species to the point where it is no longer threatened or endangered. Man's activities threaten a growing number of species with extinction, and it appears that the number of species becoming extinct has increased at a rate paralleling human population growth. For the United States alone, 200 species per decade, become extinct, with an even greater number entering the endangered category. If the same rates apply on a worldwide basis, an estimated 3,000 extinctions occur per decade.

It is clear that resources are needed to supply a growing human population—food, energy, shelter, etc. Even so, reasonable efforts can be made to prevent the extinction of many species. There are resource development alternatives, conservation measures and mitigation techniques that can be implemented which will allow resource utilization to meet man's

physical and material need and yet insure a reasonable natural diversity. In some cases, the protection of a relatively small area will preserve a species' entire range. Careful evaluation of land or water use activities and modification of essential projects when necessary will insure the continued existence of many species. Where taking is a major factor in a species' survival, the control of such taking can eliminate the threat to the species' existence.

The 1973 Act prescribes strict procedures which must be followed in determining the status and proper classification and conservation measures for an individual species. Once listed, the law provides a number of mechanisms to protect and enhance the recovery of the species involved.

LISTING (SECTION 4)

The process of determining a species' status is one of the most difficult aspects of the Endangered Species Program. The 1973 Act directs that the determination for listing a species as either endangered or threatened throughout all or a portion of its range must be based on the best scientific and commercial data available. Lengthy and complex scientific research and field investigations are frequently involved in determining many species' life histories, habitat requirements and the techniques to use for population status evaluations. The Act also directs specific consultation and coordination prior to listing, and establishes criteria for the actual determination. Before any activities for protection and

recovery of a species can take place the determination and listing process must be completed.

As of December 28, 1973, there were 391 species listed as endangered. Today, over 600 species are listed as either endangered or threatened and the status of an additional 2,000 species are being reviewed. The Fish and Wildlife Service is continuously monitoring the status of all listed species. Such monitoring has resulted in the reclassification of four species. The status of a listed species must be continuously monitored and reviewed in order that appropriate protective measures can be maintained. We would be just as negligent in the performance of our duties under the Act for not delisting or reclassifying a species that has recovered to a requisite level as for not listing a truly endangered or threatened species.

The success of the Endangered Species Program should not, however, be measured by the number of species listed. The goal of the program is to maintain a healthy diversity of plant and animal life and to restore endangered or threatened species to a level where they are viable components of their ecosystems. Thus, if it could be measured, success should be gauged by the number of species that never need to be listed plus the number of species removed from Federal protection because they are no longer endangered.

ENFORCEMENT (SECTION 9)

Once a species is listed, the prohibitions in the Act or in related regulations immediately come into force. There is little benefit to

listing a species if the prohibitions designed to protect it are not adequately enforced. Specially trained enforcement officers must be available to inspect shipments of live plants and animals as well as parts and products made from such species at ports of entry. Other enforcement officials must be available to investigate alleged violations throughout the country and perform other functions designed to eliminate illegal traffic in and illegal taking of endangered and threatened species.

The law enforcement effort is aimed at obtaining widespread voluntary compliance with the statute and regulations. This compliance is obtained either by removing the desire or incentive to engage in the prohibited activity, or by removing the opportunity for such engagement activity. Most of our enforcement activities relate to the first of these methods. After all, it is better to keep the endangered animal from being killed than apprehend the violator for the illegal killing. One way of preventing violations is by disseminating information to inform people specifically about the law and the need for compliance. In this regard, since the 1973 Act imposed a whole host of new prohibitions relating to endangered species, the Fish and Wildlife Service has carried out a major public education program.

Three television public service announcements have been distributed alerting viewers to the problem and urging them to write in for a special booklet entitled "Facts About Federal Wildlife Laws". These spots,

featuring actor Lorne Greene, were mailed to 500 TV stations throughout the country in March 1975. Three radio messages were released in 1976 to 500 stations. To date, we estimate 75 percent of the stations receiving the TV spots have put them on the air for an average of 13 weeks. We estimate the TV and radio spots released so far have received one million dollar's worth of free air time and have been seen or heard by a minimum of 50 million Americans. The public has responded and over 110,000 of the booklets have been mailed to viewers. In addition, Service officials have appeared on TV and radio programs throughout the country to explain Federal restrictions on wildlife and display a variety of forfeited wildlife items. Fact sheets have been prepared to describe in layman language the various prohibitions and how they affected special groups such as zoos and taxidermists. Assistance has been given to newspapers and magazines so that they can carry our message to an additional segment of the public.

Another method of preventing violations is by maintaining the capability and the willingness to enforce the laws. During fiscal year 1975, the Fish and Wildlife Service handled 1,343 investigations under the Endangered Species Act. In fiscal year 1976 and the transition quarter, 1,590 investigations were initiated and, during the first six months of fiscal year 1977, 1,134 investigations were initiated. As of May 31, 1977, there were 921 investigations pending. Since the Act became law through fiscal year 1976 and the transition quarter, criminal prosecutions have resulted in conviction of 209 individuals with the

courts imposing total fines of \$33,619, and 12,500 days of jail sentences. In addition, through June 30, 1977, 239 civil actions have been concluded with total penalties of \$40,180 collected. There are approximately 500 civil penalties pending.

Law enforcement activities under the Endangered Species Act have to be considered in relationship to other laws enforced by the Fish and Wildlife Service. This is for two reasons. First, the 235 enforcement officers of the Fish and Wildlife Service, called Special Agents, are responsible for the enforcement of all the laws administered by the Service. Therefore, it is impossible for us to say that a particular agent is an "endangered species" agent, or a "marine mammal" agent, or a "migratory bird" agent. Second, there is considerable overlapping protection provided by some statutes. For example, several marine mammals are also endangered species, and are therefore, protected by both the Endangered Species Act and the Marine Mammal and Protection Act. Similarly, many endangered species are also migratory birds, and thus protected by the Migratory Bird Treaty Act and, in the case of the eagle, by the Bald Eagle Protection Act. With regard to fish, there is additional protection provided by the Black Bass Act. Moreover, the Lacey Act provides protection to wildlife moving in interstate or foreign commerce if certain State or Federal laws are violated.

The 1973 Act controls the activities of "persons" which extends far beyond the traditional meaning of individuals and organizations. These prohibitions

caused several significant problems. An initial problem centered around misunderstandings about to whom and to what degree the Act should be applied. This led to an intensive period of communications, by telephone and letter, posing innumerable problems and questions. Most of these problems have, as a result of our public information campaign, been resolved.

Under the law permits are required for every activity which involves the "taking" of an endangered species. "Take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect.

Zoos found themselves faced with an apparent block to their normal business of transferring animals. It also came to our attention, shortly after the Act came into effect, that many circuses were affected because the transportation of endangered animals across State lines or in or out of the country without a permit was a violation of the Act. A number of propagators of wildlife, including endangered species such as tigers, leopards, jaguars, wolves and pheasants, found themselves unable to sell the wildlife which they produced in interstate or foreign commerce.

These problems are being resolved, in part, through the recently issued regulations (June 1, 1977) on captive self-sustaining populations of endangered species. There are species that while endangered in the wild, are being bred in captivity in such numbers that captive self-sustaining populations have been established. The successful maintenance of such

populations usually depends on the ability of the zoos or other propagators to transfer breeding stock and progeny, and recoup their expenses through the sale of surplus animals. In order to enhance the ability of propagators to breed animals in captivity in such numbers that a self-sustaining population is maintained, the Fish and Wildlife Service has promulgated regulations for treating certain otherwise endangered species as threatened in this country.

Thus far, 11 species have met the criteria for self-sustaining populations. Animals will be added to the list as they qualify.

RECOVERY TEAMS

Enforcement alone will not insure either the survival or recovery of many species. Habitat preservation, research, management and other conservation efforts are essential activities if the recovery of species is to be achieved. Therefore, one of the most important steps after the listing process is to establish a recovery team to identify actions necessary to restore a species. Recovery teams are composed of experts from the Federal, State and private sector, and there are presently 58 such teams working on 69 high priority species. Through the preparation of recovery plans it is possible to set priorities, assign responsibilities among cooperating groups, and estimate costs of a species' recovery.

LAND ACQUISITION (SECTION 5)

While both the 1969 and 1973 Act provided for habitat preservation through acquisition, here again the 1973 Act surpassed its predecessor by removing

a statutory limitation on the use of Land and Water Conservation Fund Act money and by providing a means to identify and protect critical habitats. Through FY 1977, over \$31 million in Land and Water Conservation funds has been appropriated for acquiring some 57,000 acres of key habitat for endangered and threatened species. In viewing the long range requirements of species, we estimate that as much as \$200 million may be needed to acquire habitat over the next five years.

FEDERAL AGENCY COOPERATION AND CRITICAL HABITAT DETERMINATION (SECTION 7)

As indicated in your letter inviting the Department of the Interior to participate in this oversight hearings, critical habitat designation and the requirements related to Federal agency cooperation are of major interest to this Committee. I welcome this opportunity to discuss with you the issues involved in section 7 and the Administration position regarding those issues.

Passage of the 1973 Act mandated, for the first time, responsible actions by all Federal agencies to insure protection of endangered and threatened species, and their critical habitats. Under the Act, an affected Federal agency still retains power to make final decisions as to whether and on what terms it will proceed with an action covered by section 7. The Act does, however, provide for consultation to insure that the expertise of the appropriate agencies is brought to bear on environmental questions, and provides for a check against potential biases of mission-oriented agencies. Such consultation has been shown to be very important where earlier laws were inadequate in meeting consultative needs of

Federal actions that could impact fish and wildlife resources in general and more specifically, endangered and threatened species. We believe the 1973 Act and its attendant regulations provide us with all the flexibility we need, especially if we are brought onto the scene early in the planning process.

Critical habitat is determined for only those United States species whose habitat is the critical factor in their continued existence. Such delineation is essential if other Federal agencies are to comply with the requirements of section 7 of the Act. To date, critical habitat determinations have been made for 6 species and proposals have been published in the Federal Register for 44 more species.

We estimate that about 4,500 consultations, the majority of which were informal telephone conversations, have been conducted by the Fish and Wildlife Service since passage of the Act. Since earlier laws primarily addressed specific types of actions, and affected only a few Federal agencies, many Federal actions proceeded without the benefit of technical advice on pertinent environmental considerations. We estimate that over 10 to 20 thousand consultations will be initiated in fiscal year 1978. We have recently issued regulations that establish the procedures for the Fish and Wildlife Service to advise and consult on all Federal actions that may adversely impact endangered and threatened species.

At the time of passage of the National Environmental Policy Act (NEPA) there was substantial reaction to what was perceived as NEPA's restrictive-

ness. One hundred-seventy bills and resolutions were introduced to make the new law more "reasonable" and "flexible". None of them passed. Since then, of course, NEPA has been amended, but only after very careful and extensive consideration, and even then only in a very narrow sense. In this sense we believe the Endangered Species Act is analogous to NEPA.

The Endangered Species Act provides protection not only for endangered species and their habitats, but for human values as well. The endangerment of lower forms of life is an indicator for the human race. A poignant example of this "canary in the coal mine" argument is the DDT case where this pesticide, which has subsequently been banned for human health reasons, was first discovered as creating a serious hazard to reproduction in various endangered raptorial species.

Of the thousands of Federal actions on which the Service has consulted only three actions have resulted in judicial review. Of these three, only one has been brought before you for a proposed Congressional solution. Our observations and experience clearly show that Federal agencies, for the most part, are seeking our advice, and more importantly, at earlier stages of project planning and development. We have given the Act a hard test and we are certain that it works to protect the environment while permitting most developmental programs. To amend the Act at this point, before it is fully integrated in natural resource development activities, would be premature and shortsighted.

We are about to embark on a major government wide review and identification of critical habitat on Federal lands. As I previously stated, President Carter is firmly committed to carrying out the provisions of section 7 and has directed this action in his Environmental Message to Congress and special message to affected agencies. The agencies are to identify lands under their jurisdiction which appear to be critical habitat, in consultation with the Secretary of the Interior or the Secretary of Commerce, and submit this information to the appropriate Secretary for a determination of critical habitat if such a determination is justified. The Secretaries of Interior and Commerce were specifically directed to develop expeditious timetables for implementing this process providing the necessary guidance and cooperation to the involved agencies.

The Fish and Wildlife Service has prepared draft guidelines and timetables for implementing the President's directive. This document will soon be distributed to appropriate agencies for review.

Specifically, the proposed guidelines establish a format for critical habitat submissions, including the description, maps and justifications necessary for the area in question and identification of environmental impacts for compliance with the National Environmental Policy Act. Biological criteria have been developed which define critical habitat, explain the biological concept of critical habitat, and give examples of special consideration for certain biological circumstances.

A timetable has been developed based on a review of all listed species which resulted in a priority system, by species, divided into three categories. The first category consists of species with the most urgent need for critical habitat determinations. Recommendations are to be developed and submitted to the appropriate Secretary within 12 months. The second category for species (with less urgent need for critical habitat determination) requires recommendations within 18 months, and the third (category) requires recommendations within 24 months.

INTERNATIONAL PROGRAM (SECTION 8)

The 1973 Act provided increased authority and alternative sources of funding a greater international involvement to protect endangered species. The Act is the implementing legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora. As a party to that Convention, the United States has a major international commitment to the protection of global fish and wildlife resources. Previously, our international obligations were limited to certain migratory birds and marine mammals.

To date 34 countries have ratified the Convention. Ratifying nations are now in the process of establishing management and scientific authorities as well as regulations for implementation of the Convention. Many countries, including the United States, have completed these requirements. The United States has taken the following steps toward implementation of the Convention:

- [Ratified] the Convention, January 15, 1975. The Convention came into force on July 1, 1975.
- Encouraged other nations to ratify in order to strengthen Convention. This is a continuing effort.
- Under Executive Order 11911, negotiated between the involved agencies and signed on April 13, 1976:
 - Established a United States Management Authority as required by the Convention, to issue permits, to be the United States spokesman internationally and to coordinate United States implementation.
 - Establish the United States Endangered Species Scientific Authority to conduct biological review of permit applications as required by the Convention. The Scientific Authority is an interagency organization, chaired by the Department of the Interior, and also representing the Department of Agriculture; Department of Commerce; Department of Health, Education and Welfare; National Science Foundation; Council on Environmental Quality and Smithsonian Institution.
 - Selected an Executive Secretary to the Scientific Authority.
- Drafted and issued regulations to implement the Convention in the United States, effective May 23, 1977.

Having accomplished these things, the Management and Scientific Authorities are now actively implementing the Convention. Permit applications are being reviewed and permits issued. As of July 1, 1977, the Management Authority had received 112 applications for the seven different types of permits or certificates required by the Convention. Twenty-four permits or certificates had been issued as of July 1, 1977.

The public was given 3 months from the time the regulations were published until they became effective, in order to become familiar with the new requirements. The Management Authority mailed copies of the regulations and other information to over 4,500 persons and groups known to have an interest affected by the Convention. A number of press releases and articles were prepared and disseminated to the general and the specialized trade press.

The Management Authority also prepared a special set of instructions for permit applicants, as well as a fact sheet on the Convention. The new instructions are designed to simplify the permit process for the applicant. We plan to hold a series of public workshops across the country this summer, and seek public comment on this new type of instruction.

The Management Authority is also responsible for stimulating and coordinating United States implementation of the Convention. This

is being accomplished through meetings and workshops with other agencies such as the Department of Agriculture and the Department of Commerce. We are also in the process of drafting new procedures and policies.

In the international arena, the Management Authority is pursuing several goals to make the Convention more effective. We will propose an internationally standardized identification manual at a technical meeting to be held in Geneva, Switzerland in October of this year. At the same meeting, we will discuss internationally standardized guidelines for humane transportation of Convention species and revisions of the Appendices (lists of protected animals and plants). For the future, we plan to encourage greater international uniformity in the procedures for and the appearance of Convention permits and certificates. We will continue to support substantial personnel increases in the international secretariat for administration of the Convention.

The Convention on International Trade in Endangered Species of Wild Flora and Fauna is only one of the activities authorized by section 8 of the Act. Section 8 also provides a most effective tool for carrying out a vigorous global effort to promote conservation of fish and wildlife.

The Secretary is authorized to utilize United States excess foreign currencies for programs necessary or useful to the conservation of endangered or threatened species. Very positive results can be realized through the use of excess foreign currencies. In fiscal year 1977, the

Congress authorized use of \$600,000 in foreign currency equivalents held at embassies in Egypt, India and Pakistan. Using these monies in lieu of general revenues we are developing threatened and endangered species research programs in Egypt, including training and education in the management and protection of these species. If successful, this program will have a major salutary effect on conservation of threatened and endangered species throughout the arid ecosystem of the Middle East. We intend to proceed with similar programs in Pakistan and India as soon as practicable. Our initial focus is on those species which either of themselves, or due to their relationship to other species or their environments, relate to domestic situations we face here. In this case, we seek to help ourselves while also providing programs necessary and useful to the conservation of threatened and endangered species abroad.

We have also used the consultative and cooperative authorities of section 8 to develop joint research on threatened and endangered wildlife with foreign countries which share our concerns for protecting these species. For example, consultations and shared field work on endangered mammals and birds has been undertaken with the Soviet Union. With Mexico, we have established cooperative research projects on threatened and endangered species such as the California condor, peregrine falcon, wolf, grizzly bear and masked bobwhite quail.

The Government of Saudi Arabia has asked us to develop a management program to protect several species of bustard which appear there. Saudi Arabia will fund this entire project.

Section 8 also calls for implementation of the 1940 Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. In meeting this responsibility, we have begun work with the Brazilians to train their professionals in bird banding techniques. This project, partially funded by the National Science Foundation, will increase our knowledge of migration patterns and provide information needed to establish protection programs. Similar work is developing for protection of the manatee. In Venezuela, we are joining in the design of a program to train South Americans in fish and wildlife protection, ecosystem preservation and law enforcement.

Due to the many activities of enormous global potential authorized by section 8, we have established a small staff within the Fish and Wildlife Service to develop and coordinate these nonconvention activities. The achievements I have noted represent their efforts of the past year. This staff has increased our liaison with the International Union for the Conservation of Nature and Natural Resources, the United Nations Environmental Program and the World Wildlife Fund. This liaison allows us to coordinate planned work of the Service and exchange information.

In one recent case, for example, this liaison provided us with information critical to our own needs in the South Pacific and again in relation to a National Science Foundation funded project in Spain.

STATE COORDINATION AND FEDERAL ASSISTANCE (SECTION 6)

One of the most significant aspects of the 1973 Act is its recognition of the important role of State conservation agencies. Unlike the 1969 Act the new law provides a strong Federal commitment for close cooperation and coordination with State fish and wildlife agencies. That commitment takes the form of cooperative agreements and a grant-in-aid program with the States in addition to the cooperative development and execution of recovery plans.

The grant-in-aid program authorized by section 6 of the Act provides for a financial incentive to the States to help meet the Act's requirements. We intend to do everything possible to encourage States to enter into cooperative agreements. Their expertise, manpower and cooperation are essential if we are to attain our overall goal of effecting the recovery of species and removing them from the list. State fish and wildlife agencies have the skills and manpower. In addition, many States have had programs for decades to protect endangered species for decades and their continued work is essential if the purposes of the act are to be achieved. The Fish and Wildlife Service's ability to carry out the purposes of the Endangered

Species Act depends in large part on the willingness and ability of the States to participate in the program. With few exceptions, States are cooperating and have been expending scarce financial and manpower resources in obtaining necessary authority and in development of plans for species recovery. It is not our intent to preempt State control of resident species, but rather to help States through cooperative agreements to develop adequate management program.

As you are aware, Mr. Chairman, having recently considered authorizing legislation for the grant-in-aid program, section 6(i) of the Endangered Species Act authorized an appropriation of \$10 million for financial assistance to States through June 30, 1977. In fiscal year 1976, \$2 million was appropriated to remain available until expended for grant-in-aid. In fiscal year 1977, \$4 million was appropriated for this purpose, \$3 million of which was in the supplemental appropriation. A request for \$3 million is contained in the fiscal year 1978 budget presently pending in Congress.

The Endangered Species Act provides that the Federal share of the cost of cooperative programs not exceed $66 \frac{2}{3}$ percent of the total cost when only one State is involved. If two or more States have a common interest in endangered and threatened species and enter jointly into an agreement with the Secretary, the Federal share of the program may be increased to 75 percent.

To date, 18 States have signed cooperative agreements, and thus qualify for financial assistance. Some 48 States have contacted the Service for advice and assistance in reaching a cooperative agreement. We anticipate signing an additional 13 agreements before the end of this year, and more States will come on board over the next few years.

To date, about \$1.4 million in grant-in-aid has been allocated to 16 States including: Arkansas, California, Colorado, Delaware, Florida, Maine, Maryland, Michigan, Missouri, New Jersey, New York, South Carolina, South Dakota, Virginia, Washington and Wisconsin. We anticipate that all of the funds thus far appropriated for this purpose will be obligated by September 30, 1978.

Before entering into cooperative agreements the Secretary must make certain findings regarding the State's authority and programs. This requirement of the Act has, naturally, caused some delays in allocating grant-in-aid funds. In addition, we in the Department and the States are still learning what resources are available and how best to use the funds. The allocation of Federal funds will be more timely and the need for such funds will increase as recovery plans are developed for more species, and more cooperative agreements are consummated. In addition, we anticipate multi-state agreements will also be developed.

State grant-in-aid funded programs presently involve 32 different species, among them the bald eagle, California condor, brown pelican, Florida panther and American peregrine falcon. The peregrine falcon and the bald eagle provide good examples of the type of programs for which grant-in-aid funds are used. In California the agreement provides for identifying the critical habitat of peregrine falcons, surveying eyrie sites for possible acquisition and participation in developing the recovery plan. In Colorado, we are, among other projects, documenting eggshell thinning and pesticide residues, and monitoring movements and hunting ranges of adult falcons by radio tracking. In New Jersey, we are reintroducing these falcons where they previously nested. We are, in fact, working with eight States to bring about the recovery of this spectacular bird of prey. Six States, California, New Jersey, Florida, Maryland, New York and Maine, are doing essential work to help the American bald eagle, our national symbol, by locating present and historic nesting sites and wintering areas, determining causes of mortality, providing direct protection to nesting and wintering birds, releasing young eaglets into the wild by a process called hacking and a host of other activities essential to making the nation's bald eagles a strong and healthy population that will be here for many future generations of Americans to admire.

A funding level of about \$3 million per year for the next four fiscal years will be adequate to take care of current and anticipated needs authorized by section 6.

PERMITS AND EXEMPTIONS (SECTION 10)

Although the Act provides for prohibitions against taking (except for plants), importing, exporting and interstate commerce of listed species, Congress recognized that some uses of these species were necessary, proper or desirable. Section 10 of the 1973 Act authorizes the issuance of permits for certain uses of endangered species. Section 4, implemented by regulations, provides permits for certain uses of threatened species. Section 9, which requires the entry and exit of all plants, fish and wildlife through designated ports to facilitate enforcement, also authorizes permits for entry at other ports.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora requires permits or certificates as a condition of import, export, or introduction from the sea. There are also certificates for certain exceptions. All in all, there are seven different types of permits or certificates under the Convention.

The processing of permits is an important aspect of the endangered species program, and must be handled expeditiously. Control of trade through a permit system is the fundamental mechanism of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. From July 1974 to June 9, 1977, the Service has processed 1,435 permit applications in its Washington office. Of this number, 600 were endangered species permits and 236 were for exceptions to the designated port requirement. In addition, since late February of this year, we have received 112

applications under the Convention. (This number does not include applications where the species is also covered by the Act). It is likely that the new regulations on captive self-sustaining populations and the listing of plants will increase the number of permit applications received for processing.

The major goals of the Service's permit program are:

- to reduce unnecessary paperwork for all concerned;
- improve the quality of the biological review of permit applications;
- develop simplified procedures for applicants;
- and
- reduce the time required for consideration of a permit applications.

Work is proceeding toward each of these goals, and there has been some progress. As an example of accomplishments to date on the permit system, we have:

- revised our internal system of permit tracking including establishment of a computerized data base;
- computerized mailing lists for informing interested persons of new regulations and procedures;
- developed several fact sheets on permit procedures;
- conducted internal training on permit procedures, regulatory requirements and establishment of priorities; and
- developed plans for a series of national permit workshops,

the purpose of which is to invite public participation in
revising the permit system.

I believe that the Service is going in the right direction with these actions. However, in the face of a constantly increasing workload, it has been difficult to review and issue permits in less than 120 days. The length of time it takes to process permit applications has been of considerable concern to me, and as you are aware, caused some of the most vocal criticism directed at our administration of the Act. The Service recently did an analysis of endangered species permits. The analysis showed that 40 percent of the applications surveyed were incomplete and required further information from the applicant. It took an additional 30 to 60 days to get a response from the applicant. We are trying to reduce this figure by simplifying instructions for applicants, by holding a series of public workshops on the application process, and by trying to identify and remove unnecessary questions from the applications. The analysis also identified a significant in-house delay in one of the reviewing offices, which was short of manpower. To overcome this we have eliminated one stage of the preliminary review of permits by combining it with another review. This should save up to 30 days on each application, without sacrificing the quality of the critical biological reviews.

We have set a goal of a maximum of 61 days to process an endangered species application. This includes the 30 days of public review required by the Act. We believe that this is a reasonable figure for maximum time, which does not jeopardize the quality of the review. Even with increasing workload, I am confident that we can reach this goal in one or two years.

OTHER ACTIVITIES

There is an extensive research effort, both in-house and contract, aimed at 1) producing endangered and threatened species in captivity for release in the wild, 2) conducting investigations to determine procedures identified in recovery plans, and 3) conducting investigations to determine procedures for species status surveys. Our research personnel also identify and serve as taxonomic experts on specimens taken in law enforcement cases.

Technical advice and assistance is being provided at all levels of government and the private sector. Some 600 letters a month are received in the Washington Office on the endangered species program. The number is much higher when correspondence from regional and area officers is counted.

In the area of public information the Service has responded to numerous inquiries and assistance requests from the broadcast media. Over the past two years, television and radio news and feature producers have sought information primarily on such better-known species as the whooping crane, bald eagle, peregrine falcon and red wolf. Occasionally, producers have asked for Service stock film footage on such species; more frequently, they have sought information on procedures to undertake their own filming. Production related inquiries averaged roughly four per month, during the years 1975 and 1976.

Illustrative of requests received from and assistance provided to news agencies is the cooperation afforded ABC's "Good Morning America" television program. One of the Washington-based producers of this program approached the Service in the fall of 1976 for information on what is being done to help the peregrine falcon. The Service apprised him of ongoing research and restocking efforts being conducted primarily by Cornell University and the Peregrine Falcon Recovery Teams. The Service further arranged for filming opportunities with peregrine experts in Colorado and provided peregrine footage from one of the Recovery Team members to the network. As a result of these efforts, ABC's "Good Morning America" telecast a short feature segment this April highlighting some of the important peregrine restocking work being done in the Rocky Mountain area, and bringing to the television public the positive concept that recovery programs can indeed benefit endangered wildlife.

SUMMARY OF ACCOMPLISHMENTS

In order to implement the Act carefully and judiciously, we have tried to build an orderly and thoughtfully structured base of procedures and supporting regulations. This is the basis for an effective and timely program of listing and delisting, permit processing, cooperation with State conservation agencies, habitat acquisition, protection and enhancement of species on Service and other Federally administered lands and assistance to other countries.

I am firmly convinced the Fish and Wildlife Service's approach has been appropriate and significant progress has been made. The Service has memorandums of understanding with the Department of Commerce that delineate areas of jurisdiction, cooperation and law enforcement. The Service has held workshops throughout the country and briefed State, Federal and private conservation agencies on the Act. Similarly, steps have been taken to insure that all Interior agencies and other Federal agencies are aware of their obligations under the Act. Guidelines have been developed for States to use in preparation of cooperative agreements and action is well underway in reaching such agreements. A model nongame and endangered species bill has been developed to assist States in obtaining legislative authority compatible with the Federal law. A method to implement the difficult but essential "critical habitat" concept of the Act has been developed. Some 58 recovery teams have been established. Educational materials on endangered species including special brochures, notices and TV spots have been produced.

Limited resources, however, necessitate uneven application of the Act. Although the Act gives authority for listing and protection of species worldwide, it has been necessary to limit program efforts and establish priorities within the program. Endangered native ecosystems and species have received priority over lesser taxa and the more endangered a species is, the greater the effort is to provide for its conservation. While

it is unlikely that we can ever provide the resources necessary to protect all species equally necessary to threat all species equally, an adequate level of funding and manpower must be available to operate within the priority system and at the same time meet emergency situations and be responsive to petition as well as an ever-increasing activity on the part of private citizens and conservation groups.

Appropriations are not authorized beyond fiscal year 1978 for continued implementation of the Endangered Species Act. Grant-in-aid fund under section 6(i) are in the process of being extended. The Administration is presently evaluating our recommendation for extending the general authorization contained in section 15 of the Act. It is my hope that it will be possible, within overall national budgetary priorities to provide the funds and manpower necessary for maintaining a balanced program.

PROBLEMS

As I am sure you are well aware, Mr. Chairman, progress in implementing the Act has not been without problems.

Those who have said that we are avoiding discharging our responsibilities have perhaps expected too much. On the other hand, there are those who view our implementation of the Act as a threat to their livelihood or programs. In some cases it is; it should be. I fully support the intent of the Act to reduce the demand for endangered animals and their parts

or products. It is essential that we reduce the demand for certain animals that have been reduced to a level where their continued existence is in jeopardy. However, we recognize that this creates some legitimate cases of economic hardship on those engaged in legitimate commercial activities prior to passage of the 1973 Act. The commercial demand for endangered animals from the wild should be eliminated, and the United States should take the lead by reducing the demand by its citizens for animals taken from the wild, but to abruptly eliminate this demand by declaring illegal an activity which does not affect wild stocks appears to be an unnecessarily severe approach.

The Congress recognized this problem last year in enacting Public Law 94-359, exempting under certain conditions whale parts and products lawfully held on or before December 28, 1973, from the prohibitions in the Act. Incidentally, that also provided needed amendments to facilitate administrative processes, clarify enforcement procedures and refine the definition of "commercial activity". It did not, however, address the entire problem. The 1973 Act provides a one year economic hardship exemption for species listed subsequent to December 28, 1973. . An exemption is also provided for animals held in a controlled environment on the date of enactment if such animals were not being held for commercial purposes. For example, the breeder of Swinhoe's pheasant who trades with other aviculturists and the wholesaler or retailer with a stock of parts and products of animals listed as endangered under the 1969 authority, other than scrimshaw and whale oil, were not provided any exemptions under the new law. Yet, they were engaged in legitimate

commerce prior to December 28, 1973. I believe that where economic hardship can be clearly demonstrated these people have a valid criticism of the Act. The captive self-sustaining population regulations will eliminate part of the problem, but not the entire problem.

You will be hearing from State witnesses who will be describing difficulty in entering into cooperative agreements because of the lack of State legislative authority, and also because of the definition of "States agency" in the Act. In addition, the Act does not allow grant-in-aid for protection of plants.

We hope that you will look into these situations in greater depth than can be done at this oversight hearing, and we would be pleased to provide you and your staff with technical assistance.

Mr. Chairman, I appreciate the opportunity to present this overview of the 1973 Endangered Species Act. This concludes my prepared statement. I would be pleased to answer any questions you might have. Thank you.

Testimony of
Jack W. Gehringer
Deputy Director
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. DEPARTMENT OF COMMERCE

at

Oversight Hearings
on the
Endangered Species Act of 1973

before

Subcommittee on Resource Protection
Committee on Environment and Public Works
U.S. Senate
July 20, 1977

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss our agency's progress in implementing the Endangered Species Act of 1973.

I will mention briefly the basic responsibilities of the Department of Commerce under the Act, our major accomplishments and expenditures to date, indicate planned activities, the criteria and methodology for listing determinations, and interagency consultation. Lastly, I will comment on proposed amendments concerning section 7 of the Act.

The responsibilities of the Department of Commerce under this Act have been delegated to the National Marine Fisheries Service (NMFS). Our basic responsibility is to develop and maintain conservation programs for fish, wildlife, and plant species of the marine environment. In meeting these responsibilities we have, or course, worked very closely with the U.S. Fish and Wildlife Service (FWS) of the Department of the Interior. We have also interacted with the States, other Federal agencies, and, in certain situations, foreign countries. Our actions have involved administration, research, and law enforcement functions.

Our actions on the State level, as indicated in our testimony to this Subcommittee last April, have involved establishing the mechanism for State-Federal Cooperative Agreements under Section 6, cooperative law enforcement efforts, and consultations relative to the possible listing of resident species.

On the Federal level, we have entered into interagency memoranda of understanding with the FWS to provide for cross-utilization of enforcement authority and capability, and to clarify jurisdictional responsibilities and listing procedures. We have also co-chaired Committees with the FWS

to brief other Federal agencies on Section 7 of the Act and to develop guidelines for Federal agency consultation to avoid jeopardizing endangered and threatened species and to avoid the destruction or modification of critical habitat. Concerning import/export enforcement activities, we have interacted with the Customs Service of the Treasury Department. To a lesser degree, we have also worked with the State Department, Agriculture Department, and the Environmental Protection Agency.

International cooperation has involved soliciting views and information from foreign countries concerning the possible listing of species -- either resident in those countries or harvested by residents of those countries. We have also encouraged research on endangered whales and attempted to persuade foreign countries, through the International Whaling Commission (IWC), to adopt a 10-year moratorium on the commercial harvesting of all large whales. Significant reductions in fin, sei, and sperm whale quotas have been achieved. We also have served on the U.S. delegation to the first Conference of Parties to the Endangered Species Convention last November where the United States was successful in getting three marine species listed on the appendices

to the Convention (fin and sei whales, and the totoaba, a Mexican weakfish). We also provide continuing assistance to Interior in the implementation of that Convention, both as a member of the Scientific Authority and as a consultant to the Management Authority.

Other program actions, and accomplishments, include publication of final regulations covering general administration of the Act, civil procedures, seizure and forfeiture procedures, permit provisions, and cooperation with the States under Section 6. We have also proposed regulations, jointly with the FWS, to formalize procedures for interagency consultation under Section 7 of the Act.

Under our permit regulations, we have processed 32 permit applications for scientific purposes involving the endangered shortnose sturgeon, endangered sea turtles, and one or more of the eight endangered species of large whales and 27 permits have been issued by NMFS.

Our research has included stock assessments, population dynamics, habitat requirements, and other factors necessary to monitor the biological status of species, support listings, and encourage foreign governments to adopt complementary conservation measures.

NMFS has conducted research on endangered whales over the past several years and this research is expected to expand next year. Recent NMFS reports on the endangered bowhead whale concern population biology of the whale in the Bering, Chukchi, and Beaufort Seas, the 1976 catch of bowhead whales by Alaskan Eskimos, with a review of the fishery, 1973-1976, and a biological summary of the species. Population and habitat surveys of sea turtles are being conducted in the southeastern United States. In addition, a net panel is being developed for use with shrimp trawls to reduce the incidental catch during shrimp fishing. We reported on development of Hawaiian monk seal habitat requirements earlier this year and we are presently considering designation of critical habitat for this species. We established a recovery team for shortnose sturgeon which will host a meeting with sturgeon experts and interested individuals later this month to discuss current research and information needs.

We have expended an estimated 14 man-years of effort in reviewing information on the Atlantic bluefin tuna, the Hawaiian monk seal, the Caribbean monk seal, the totoaba, the green, loggerhead, and Pacific ridley sea turtles for

possible listing under the Act. The Atlantic bluefin tuna was under consideration for listing as a threatened species due to a lack of adequate regulatory mechanisms. This need was eliminated with passage in August, 1975 of the Atlantic Tunas Convention Act, which implemented the International Convention for the Conservation of Atlantic Tunas. The Hawaiian monk seal was listed as endangered in November 1976. Final regulations listing the Caribbean monk seal and totoaba as endangered are expected to be published in the near future.

We and the FWS have just signed a new Memorandum of Understanding redefining agency jurisdiction for sea turtles. NMFS will have responsibility for sea turtles while in the water and FWS will have responsibility for them when they are on land. We believe this agreement will facilitate orderly, effective implementation of the Act with regard to sea turtles. Final regulations listing the green, loggerhead, and Pacific ridley sea turtles, as threatened, are expected to be published by the Department of Commerce and the Department of the Interior this fall.

Significant accomplishments have been made in enforcement. Even though our enforcement effort is largely restricted to specific complaints, through May, 1977, NMFS special agents have investigated 1135 cases involving alleged violations of the Act. The majority of these cases involves unlawful importation of and interstate commerce in parts and products of endangered species, particularly whale teeth, bone, and oil, and turtle meat and shells. A total of 2,344 items valued at approximately \$306,000 has been seized and subsequently forfeited to the government, and \$75,290 in civil penalties have been paid for violations of the Act.

Of the 1135 investigations conducted under the Act, 31 were initiated in calendar year 1974, 297 in 1975, 633 in 1976, and 174 through the first five months of 1977. The number of investigations initiated in 1977 likely will be well below the 1976 total. This is due, at least in part, to an increased public awareness of the the Act created by dissemination of pamphlets, posters, fact sheets, and copies of the Act and regulations, and by personal contacts between our and FWS special agents with individuals involved in commercial activities dealing with endangered species parts and products.

Amendments to the Act (P.L. 94-359) authorized the NMFS on July 12, 1976, to grant exemptions from certain interstate and foreign commerce prohibitions to individuals legally holding inventories of certain pre-Act endangered species parts and products. Through June, 1977, we issued 23 Certificates of Exemption to persons holding inventories of whale teeth, bone, and oil. Eight additional applications for Certificates of Exemption are currently being processed. After August 17, 1977, NMFS will no longer accept applications for Certificates of Exemption under P.L. 94-359.

In terms of expenditures, the National Oceanic and Atmospheric Administration reprogrammed \$130,000 in FY 1974 on a one-time basis to initiate an endangered species program, almost all for whale research. In FY 1975, on a one-time basis, \$350,000 was reprogrammed for research on the status of Atlantic bluefin tuna, and an additional \$30,000 was reprogrammed for the administration of the Act. ●

In FY 1976, \$400,000 was appropriated: about \$100,000 to develop policy and regulations, for review of permit applications, and for administration of the program generally; \$150,000 to enforce the provisions of the Act; and the remaining \$150,000 for studying population status and trends

of sea turtles, Hawaiian monk seal, Guadalupe fur seal, and northern elephant seal. During the FY 1976 budget transition period, we received \$27,500 for a continuation of this research, allowing for limited research for Atlantic sturgeon, and \$42,500 for administration and enforcement.

A total \$541,000 was appropriated in FY 1977. This included an additional \$145,000 for overhead support. The administration, enforcement, and research allocations remained relatively unchanged from FY 1976, and research emphasis shifted to sea turtles. In order to accelerate development of gear designed to reduce incidental catch of turtles by commercial fishermen, in FY 1977 we reprogrammed \$163,000 from other activities into sea turtle research. These monies primarily came from salary lapses within the agency.

The endangered species program has nine full-time positions: a program manager, an endangered species specialist, a secretary, and six law enforcement agents. Others within the agency who assist in implementing the Act, include administration, research, law enforcement, and General Counsel staff personnel.

Major activities to be carried out in future years will, of course, be keyed to available funding. The Administration's FY 1978 budget request asks to increase our endangered species budget by 3 positions and by \$309,000. This increase would be used to fund whale research. With our base funding of \$541,000, we will continue to do the following: promulgate regulations, conduct law enforcement activities, carry out sea turtle research and management programs, designate critical habitat, as appropriate, for sea turtles and the Hawaiian monk seal, process permits, review State/Federal Cooperative Agreement applications and review Federal agency projects to ensure that they do not jeopardize endangered or threatened species or destroy or modify critical habitat.

In FY 1979, NMFS proposes to expand sea turtle, whale, seal, and fish research. We will also consider funding requests to provide for State/Federal Cooperative Agreements.

Actions which should be undertaken over the next several years include: research on all species listed; status reviews and protection resulting from listing Convention species not presently listed domestically as endangered or threatened; status reviews of species for which we receive

petitions which present substantial evidence in support of listing; commercial fishing gear research to reduce or eliminate incidental catch of endangered or threatened species; marine flora research and regulations; designation of critical habitat areas; and adequate State/Federal Cooperative Agreement support.

Let me turn now to the methods and procedures for listing determinations. The biological criteria we use to determine species which should be listed as endangered or threatened consists of the best available information as to whether: (1) the population is estimated to be very low relative to initial or historical population size; (2) there has been a clear trend of decreasing population; (3) the habitat is being destroyed or otherwise curtailed; (4) the range and distribution of the species or separate breeding populations of the species are being, or have been, reduced; (5) commercial or other catch records show major reductions while catch effort remains high; and (6) an extraordinary threat to a species exists.

Methods for determining priority of species in listing as endangered or threatened include: (1) the basis or degree of biological endangerment, therefore, candidates for listing

as endangered would receive higher priority than those considered threatened; (2) location within the territorial limits of the U.S. or otherwise under the jurisdiction of the U.S.; and (3) petitions by the public, when supported by adequate documentation and falling within the categories of (1) or (2) above.

The Subcommittee has expressed particular interests in Section 7 of the Act. Our involvement under this provision law is small by comparison with that of FWS, due primarily to the number of listed marine species (we are responsible for 14 species presently listed and FWS is responsible for over 600), the fact that most Federal actions affect land or freshwater areas, and the fact that NMFS has not yet designated any critical habitat. We have reviewed a number of significant agency actions which could conceivably impact listed marine species. Most consultations have been initiated through the NEPA process and have involved either the Army Corps of Engineers concerning maintenance dredging, beach refurbishment, or power projects, or the Environmental Protection Agency concerning power plants, sewage treatment, and tidal projects. We have also reviewed coastal zone management plans of the NOAA Office of Coastal Zone Management for potential impact on listed species. We believe that most Federal agencies with whom

we have consulted go along with our recommendations, which may simply alert them to the presence of endangered species in the area to be affected. In other instances, NMFS recommended that the Federal agency involved refrain from conducting the activity during certain periods of time, (e.g., avoid dredging during the months of high species occurrence). We are not aware of any unresolvable conflicts.

With respect to various proposals to amend Section 7 of the Act to provide exemptions for certain Federal projects, NMFS believes that Section 7 offers sufficient latitude through the consultation process to remedy problems which may arise. Consultation properly utilized should preserve the interest of the species in question and allow a viable alternative for the initiating Federal agency.

Mr. Chairman, this concludes my prepared statement. I will be pleased to answer any questions you may have.

Senator CULVER. Would the next panel come forward, please?

Gentlemen, I wonder if you would all be good enough to summarize briefly, your written testimony. We will have the full text of your statements entered into the record.

We do apologize for the time constraints. Please begin.

STATEMENTS OF EDWARD RANEY, PRESIDENT, ICHTHYLOGICAL ASSOCIATES, INC., AND PROFESSOR OF ZOOLOGY EMERITUS, CORNELL UNIVERSITY; JAMES WILLIAMS, STAFF BIOLOGIST, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR; BRUCE COLLETTE, ASSISTANT DIRECTOR, SYSTEMATICS LABORATORY, NATIONAL MARINE FISHERIES SERVICE, DEPARTMENT OF COMMERCE; STEPHEN EDWARDS, EXECUTIVE SECRETARY, ASSOCIATION OF SYSTEMATICS COLLECTIONS; AND ROBERT JENKINS, VICE PRESIDENT FOR SCIENCE, THE NATURE CONSERVANCY

Mr. RANEY. My name is Ed Raney, emeritus professor of zoology at Cornell University. I have studied fish for some 45 years. Since I only have a minute, I would like to highlight what I think is a problem in connection with the Endangered Species Act.

My specialty basically is fish and other aquatic organisms. With 20 other colleagues who are knowledgeable about fishes, crayfishes, insect larvae that live in water, and other aquatic organisms, I could describe at any time in the southeastern United States—that is in the part of the United States that was not glaciated—new species which immediately, if a snail darter case is an example, would be put on the threatened and endangered list and on the basis of limited knowledge about the habitat, could stop the building of any dam, any nuclear plant, any coal mine or any other major facility in that part of the United States in the Southeast.

I will prepare a document and submit it to the committee. [The document referred to appears at the end of today's proceedings, p. 147.]

Senator McCURE. Dr. Raney, certainly we will receive that document when it is presented. It will be made a part of the record in full and it may also, when received, stimulate a question from one or more members of this committee.

We might submit then those questions, if there be no objection. The questions could be submitted in writing with the responses in writing.

Thank you, very much.

STATEMENT OF STEPHEN R. EDWARDS

Mr. EDWARDS. Thank you.

I am the executive secretary for the Association of Systematic Collections. I would like to submit for the record a position paper that was prepared for consideration by this subcommittee. (See p. 135.)

I am here to make a case for the endangered biologist—the person that has had considerable experience with preserved and living animals and plants—who first documented the problems of the decreasing populations of certain species. This community was the first to have an empathy for this problem. It subsequently has become a public issue.

The organization I represent is comprised of 65 major research institutions throughout the United States and Canada. We maintain biological collections of both living and preserved animals and plants, ranging from viruses and bacteria, through mammals, and flowering plants.

The regulations that we face in the course of performing our basic mission, research, are excessively prohibitive. For example, the Endangered Species Act contains a “grandfather” clause that provides that any specimen of a species obtained after December 28, 1973, that subsequently is determined to be endangered or threatened, falls under the purview of the Endangered Species Act. That means that we must acquire all of the necessary permits to continue to maintain it and use it in our basic research.

We are an international community, not restricted to the United States for communications. We recognize no State or national boundaries in exchanging information or preserved or living specimens. Even though we have acquired specimens legally, under permit, subsequent loans or exchanges of those specimens require additional permits. Parts and products of an endangered species are also controlled. If we want to carry it to the extreme, a fossil of an endangered species that occurred in North America during the Pleistocene would be controlled by the Endangered Species Act.

In conclusion, I would like to say that in all respects, this community supports the basic concepts of the Endangered Species Act. However, this act cannot be used to stop the research that led to the basic information that gave us the act in the first place. I concur very strongly with Senator McClure on this matter.

Thank you.

Senator McCLURE. Thank you, Dr. Edwards.

I understand you appreciate some means by which the scientific community can be freed of the excessive restriction on their activities, even where endangered species are concerned.

Mr. EDWARDS. That is correct. I would put the burden of management of research on endangered species in the hands of the institutions that have supported this research for a number of years. I would provide for institutional permits with a review process that was managed by the community of scholars within each of these institutions. I would not place that authority in Washington in the hands of a disinterested party—USDI.

We have been conducting research in these matters quite successfully for a number of years.

Senator McCLURE. Thank you, very much.

[Mr. Edwards' position paper follows:]

POSITION PAPER

20 July 1977

The Effects of the Endangered Species Act
on the Systematics Collections Community

Presented to: The Senate Subcommittee on
Resource Protection
Senator John C. Culver, Chairman

Prepared for: The Association of Systematics
Collections

Presented by: Stephen R. Edwards, Ph.D.
Executive Secretary

THE EFFECTS OF THE ENDANGERED SPECIES ACT ON THE
SYSTEMATICS COLLECTIONS COMMUNITY

The Association of Systematics Collections was founded in 1972 with 24 institutions to improve management and development of natural history collections and to facilitate use of those collections in science and by society. "Collection" denotes more than physical housing and maintenance of preserved or living organisms. Each specimen contained within a collection represents a unique information set, which minimally must include the following data: the precise locality from which the organism was obtained; the date on which it was obtained; and the person who collected it. Other information that normally are associated with each specimen are the name of the person identifying the specimen, field notes documenting the details of the habitat from which the organism was taken, weather conditions, description of colors in life, notes on behavior and other species found at the same locality. In addition, a given specimen is accompanied by a host of ancillary data and documentation such as photographs of the living organism and the habitat in which it was found, microscopic slide preparations of the specimens' genetic material, preparations of parasites associated with the organism, and, if appropriate, recordings of sounds the organism produces. Therefore, these collections represent a complex inter-related data base that should be readily available to address problems of science and society.

Today the ASC membership is comprised of 65 institutions and 11 professional societies. The institutional members include large and small private museums, private and State universities, and Federal and State government collections (see attached sheet).

Although these institutions have diverse missions, they all have certain characteristics in common:

- 1) They maintain collections of biological specimens with associated documentation on the origin of the specimens, who collected them, when they were collected, etc.
- 2) They employ professional scientists to manage the collections.
- 3) They support active research programs.
- 4) The collection resources are available to the scientific community and society in general.
- 5) There is a commitment on the part of the administration of each institution to maintain the collections in perpetuity.

Our professional societies are also cited on the attached sheet. These societies all have international memberships and a stated commitment to systematic biology with a majority of their members carrying out research on the systematics of plants and animals.

The collections represented through the Association hold in trust over 300 million biological specimens representing the spectrum of plants and animals that comprise an important component of our natural heritage; and with the 2,000 scientists who manage the collections, the documentation on each specimen and associated libraries, they comprise a significant National Resource.

Today natural history collections serve as a basis for research into the nature, origin, development, and past and present relationships among plants and animals. Further, they serve as specialized "libraries" whereby the precise identity of each kind of plant or animal can be determined. This service is possible because of the international codes of nomenclature that must be followed to describe a "new" species and require that examples of the newly described species be deposited in recognized collections throughout the world as Holotypes and Paratypes. Without an alphabet, words and functional written communication cannot proceed. "Type" specimens provide a reference standard for that alphabet and insure a world-wide scientific stability. The capacity of this community to function is absolutely dependent on the free exchange of specimens between institutions in different countries. This leads me to the primary reason for my presenting this statement. It was through the natural history community that factual data of decreasing populations of particular species were first obtained. Out of such knowledge emerged the "endangered species" concept. The concept relates only to the current or perceived status of a particular species, rather than addressing more important issues. For example, how can we ensure reestablishment of a species' population as an integral component of its community? What factors contributed to the endangered status and what roles did these factors play? Herein lies the fundamental conflict between the natural history museum community and the regulatory law designed to implement the Endangered Species Act. Today, basic research is being determined by regulations that tend to discourage research into

these important questions--the answers to which are essential if species currently recognized as endangered or threatened are to regain a so-called "normal" or "healthy" status or to determine if indeed they are endangered at all. For example:

1) Although the regulatory law provides exemptions for scientific research, the current procedure for acquiring the necessary permits is time consuming and potentially costly--an unnecessary frustration to qualified scientists wishing to investigate endangered or threatened species.

2) The scientific community does not review the merits of permit applications--it is done by Federal employees that often lack an intimate knowledge of the scientific community, the organisms, and other research that may apply directly to the problem in question.

3) Individuals in qualified institutions cannot exchange preserved specimens of endangered species freely unless they have the requisite import/export permits--even if the specimens were acquired under permit initially. This further inhibits the progress of research.

4) Unsolicited specimens received by a curator may include representatives of endangered species that are not identified until sometimes months later, at which time the curator has broken the law and is subject to prosecution.

5) The "Grandfather Clause" of the Endangered Species Act requires that any specimen of a species obtained after 28 December 1973 that is subsequently determined to be endangered or threatened falls under the purview of the Endangered Species Act--that is, you need to acquire all the necessary permits to continue to maintain and use it in a collection.

6) The protocol for determining the date of acquisition of a specimen, and particularly whether it was acquired prior to 28 December 1973 may not recognize the information contained in a museum catalog as valid documentation because these criteria are not well defined.

7) Many times it is difficult to provide all the required information on a shipping label when each specimen in a package bears a tag with the catalog number that in turn references this information.

8) The fact that "parts" of an endangered species are subject to equally restrict controls also inhibits basic research. For example, a skeleton of a preserved specimen has potential scientific value.

In closing let me emphasize that the natural history museum community I represent does not want to "neuter" the Endangered Species legislation. On the contrary, we would prefer to strengthen this legislation in order to provide for basic research--research that will lead to the reestablishment of these species as integral components of our environment. Furthermore, we need the freedom to continue to support this basic research without the inhibitory effects of the current Act and associated regulatory law.

As a recent graduate from college may intone after completing four years of study--"My greatest single lesson is that I now know how much I don't know." So it is in the world of endangered species and biology in general in this country. Today we are just beginning to understand how little we really know about our flora and fauna. This recognition of our lack of knowledge led the Association in 1973 to unanimously pass a resolution calling for the establishment of a national biological survey (in the model of the USGS) to implement a survey of the animals and plants of the United States with the creation of a taxon-based electronic data processing system and the establishment of an inventory of open areas. Only through such a national coordinated effort will we, both in Government and science, be able to answer the important questions you are addressing here today.

ASSOCIATION OF SYSTEMATICS COLLECTIONS

Institutional Members

ACADEMY OF NATURAL SCIENCES OF
PHILADELPHIA (Philadelphia, PA)
AGRICULTURE CANADA (Ottawa, CAN)
ALLEN MUSEUM OF ENTOMOLOGY (Sarasota, FLA)
AMERICAN MUSEUM OF NATURAL HISTORY
(New York, NY)
AMERICAN TYPE CULTURE COLLECTION
(Rockville, MD)
ARKANSAS STATE UNIVERSITY (State
University, ARK)
BELTSVILLE AGRICULTURAL RESEARCH CENTER
(Beltsville, MD)
BERNICE P. BISHOP MUSEUM (Honolulu, HI)
BRITISH COLUMBIA PROVINCIAL MUSEUM
(Victoria, B.P., CAN)
BUFFALO MUSEUM OF SCIENCE (Buffalo, NY)
CALIFORNIA ACADEMY OF SCIENCES
(San Francisco, CA)
CARNEGIE MUSEUM OF NATURAL HISTORY
(Pittsburgh, PA)
CLEVELAND MUSEUM OF NATURAL HISTORY
(Cleveland, OH)
CHARLESTON MUSEUM (Charleston, SC)
CORNELL UNIVERSITY (Ithaca, NY)
DELAWARE MUSEUM OF NATURAL HISTORY
(Greenville, DE)
FIELD MUSEUM OF NATURAL HISTORY
(Chicago, IL)
FLORIDA DEPARTMENT OF AGRICULTURE AND
CONSUMER SERVICES (Gainesville, FLA)
FORT HAYS STATE UNIVERSITY (Hays, KS)
GULF COAST RESEARCH LABORATORY
(Ocean Springs, MS)
HARVARD UNIVERSITY (Cambridge, MA)
ILLINOIS NATURAL HISTORY SURVEY
(Urbana-Champaign, IL)
ILLINOIS STATE MUSEUM (Springfield, IL)
LOUISIANA STATE UNIVERSITY (Baton
Rouge, LA)
MCGILL UNIVERSITY (Quebec, CAN)
MIAMI UNIVERSITY (Oxford, OH)
MICHIGAN STATE UNIVERSITY (East
Lansing, MI)
MISSOURI BOTANICAL GARDEN (St. Louis,
MO)
MILWAUKEE PUBLIC MUSEUM (Milwaukee, WI)
NATIONAL FISH AND WILDLIFE LABORATORY
(Washington, D.C.)
NATIONAL MUSEUM OF NATURAL HISTORY
(Washington, D.C.)
NATIONAL MUSEUM OF NATURAL SCIENCES
(Ottawa, CAN)
NATURAL HISTORY MUSEUM OF LOS ANGELES
COUNTY (Los Angeles, CA)
NEW YORK BOTANICAL GARDEN (Bronx, NY)
NEW YORK STATE MUSEUM OF SCIENCE
SERVICE (Albany, NY)

NORTH CAROLINA STATE MUSEUM OF NATURAL
HISTORY (Raleigh, NC)
NORTH CAROLINA STATE UNIVERSITY (Raleigh, NC)
PENNSYLVANIA STATE UNIVERSITY (University
Park, PA)
PURDUE UNIVERSITY (West Lafayette, IN)
ROYAL ONTARIO MUSEUM (Toronto, CAN)
SAN DIEGO NATURAL HISTORY MUSEUM (San Diego, CA)
SOUTHERN METHODIST UNIVERSITY (Dallas, TX)
TEXAS A&M UNIVERSITY (College Station, TX)
TEXAS TECH UNIVERSITY (Lubbock, TX)
UNIVERSITY OF ALASKA (Fairbanks, AK)
UNIVERSITY OF ARIZONA (Tucson, AZ)
UNIVERSITY OF CALIFORNIA-BERKELEY (Berkeley, CA)
UNIVERSITY OF CALIFORNIA-DAVIS (Davis, CA)
UNIVERSITY OF CALIFORNIA-SAN DIEGO (San Diego,
CA)
UNIVERSITY OF COLORADO (Boulder, CO)
UNIVERSITY OF FLORIDA (Gainesville, FLA)
UNIVERSITY OF ILLINOIS (Urbana-Champaign, IL)
UNIVERSITY OF KANSAS (Lawrence, KS)
UNIVERSITY OF LOUISVILLE (Louisville, KY)
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UNIVERSITY OF NEBRASKA (Lincoln, NE)
UNIVERSITY OF SOUTHERN CALIFORNIA (Los Angeles,
CA)
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VIRGINIA POLYTECHNIC INSTITUTE AND STATE
UNIVERSITY (Blacksburg, VA)
WESTERN FOUNDATION OF VERTEBRATE ZOOLOGY
(Los Angeles, CA)
YALE UNIVERSITY (New Haven, CN)

Societal Members

AMERICAN ARACHNOLOGICAL SOCIETY
AMERICAN ORNITHOLOGICAL SOCIETY
AMERICAN SOCIETY OF MAMMALOGISTS
AMERICAN SOCIETY OF PLANT TAXONOMISTS
AMERICAN SOCIETY OF ICHTHYOLOGISTS AND
HERPETOLOGISTS
ASSOCIATION OF BOTANICAL GARDENS AND ARBORETA
ENTOMOLOGICAL SOCIETY OF AMERICA
HERPETOLOGISTS' LEAGUE
THE PALEONTOLOGICAL SOCIETY
SOCIETY OF VERTEBRATE PALEONTOLOGY
SOCIETY FOR THE STUDY OF AMPHIBIANS AND
REPTILES

STATEMENT OF BRUCE COLLETTE

Mr. COLLETTE. Mr. Chairman, my name is Bruce Collette, assistant director of the systematics laboratory, working for the National Marine Fisheries Service, and I might say I am proud to be one of Dr. Raney's students on darters.

I would like to endorse Dr. Edwards' statements about the difficulty of working with some of the species. Sometimes we find a species to be endangered, then it becomes difficult for us to get additional information. I think perhaps you are somewhat concerned about the total magnitude of the problem. So I might say there are approximately 20,000 species of fish in the world, about 20 percent of these are freshwater fish and these are restricted to a very small proportion, therefore, of the Earth's waters. The reason for this special situation is because of isolation in headwater streams and things of this nature.

There are about 20,000 species of other vertebrates also. If we want to look at vertebrates, that might slow down projects on a worldwide basis. You are talking about perhaps 40,000 species. In the United States there are 726 actual species of fish. Admittedly, there are distinctive subspecies of some of these.

About 50 of these are yet undescribed, but are well enough known that some of them have been on collection shelves attributed to a particular author for 10, 20, 30 years, because authors haven't gotten around to doing all the work they should have done. So there are undescribed species, as Dr. Raney alluded to. However, I do not think there are quite that many.

It is true that virtually anybody can write a description. Some of them get weeded out in the editorial process before they are published in the scientific journals and the ones that are not valid get weeded out later by subsequent papers synthesizing them. We have no ultimate court, no person that says this is a valid species, or this isn't a valid species.

As Dr. Edwards said, this is a worldwide international community. Scientists put their thoughts forth in scientific papers and anyone that wishes to disagree with them can thereby try to disprove them. If somebody wishes to try to synonymize the snail darter, they are perfectly free to take the data and try to prove it is not a species.

However, I should point out also that the arguments about things like this don't hinge on whether it is a full species, the act clearly provides for subspecies or geographical populations, so that it seems applicable in this case. There are about 160 forms of those which include the darter.

Senator McCLURE. You say if anyone wishes, for instance, to disprove the existence of the snail darter as a distinct species, they are free to do so. But as I understand the judge's decision, the Secretary of the Interior's decision on that matter is conclusive.

Mr. COLLETTE. That may be one interpretation. If somebody showed me the same color pattern, the same breeding distribution, the same pattern on the breast that supposedly distinguishes it, in another viable population, then you can state it is not endangered or it is not a species.

Senator McCLURE. My question is not whether or not the snail darter is a separate species; my question is directed to the fact that

while the scientific community might debate this, the decision of the Secretary of the Interior is final.

Mr. COLLETTE. But as was pointed out earlier, the objective of the list is to get things off the list. So if you can prove it is not a separate species, or not a distinctive population or that it occurs abundantly elsewhere, then the procedure exists to delist it.

Mr. EDWARDS. I believe that there is a general misunderstanding on the part of the layman. Species names are not fixed. Any species may not be recognized forever. Through time, many students may review groups of species and synonymize—a process in systematic biology by which a number of previously recognized species names are referenced under a single name—or split currently recognized species. Taxonomy is a dynamic process that is not affected by governmental regulations.

Senator McCURE. I don't question that, but assume for the moment that the Secretary of the Interior didn't wish to recognize the changes of opinion within the scientific community.

Mr. EDWARDS. The Secretary of the Interior would be rather naive if somebody in the scientific community was in fact able to demonstrate the validity of the name change to the satisfaction of his colleagues. The change would be recognized by the scientific community.

Senator McCURE. I will not quarrel with that possible description. I am not personalizing this in the person of the individual who is now there. But the potential exists, as I understand it, for an interpretation by the judge of the existing law. I would think that this would be a matter of concern to the scientific community as well. Would I be correct?

Mr. EDWARDS. Yes.

Senator McCURE. I didn't mean to cut you off.

Mr. COLLETTE. That is all I have to say unless there are further questions.

Senator McCURE. Thank you.

STATEMENT OF ROBERT JENKINS

Mr. JENKINS. I am Dr. Robert Jenkins, vice president for science, the Nature Conservancy. I had not anticipated making a statement, but I, and the organization which I represent, are strongly supportive of the purpose of the Endangered Species Act and the even broader purpose of preserving ecological, biological, and genetic diversity.

We strongly believe that this is an extremely worthwhile goal for the reason that these genetic resources constitute all of our future renewable natural resource options, both for their ecological functions and for any practical significance they may have in human affairs.

We do believe that the existing act and the program associated with it may possibly suffice to deal with most or all of the vertebrate animal species and with the higher plant species of the United States and North America. Over the long run, we believe that for the plethora of other species, because of some of the chronic shortcomings of our current scientific knowledge there will be additional steps required. It should be a tenet of prudent resource management, to assure the continuation of as much of this diversity as possible through positive measures to protect the widest possible variety of the ecosystem types

including widely distributed and typical ecosystem types as well as peculiar types that may support these particular rare and endangered species.

We further believe that the great issue in endangerment and extinction of the species is habitat destruction, and that at the present time, we know far too little about the existence, characteristics, numbers, condition, status, location, and distribution of the habitats of the species in question. We would urge the acceleration of the research process through State and Federal arrangements to identify these habitats as early as possible so that the conflicts that have occasionally arisen may be avoided by the properly timed availability of this information in the planning process.

Senator McCURE. Thank you very much. We will certainly welcome more extensive statements if you desire to file one with the committee. I assure you that at least this Member will read it, because I am very interested in what each of you has to say about this question. I didn't arrive at this hearing with any fixed idea of what the right answer is. I certainly share with you the support for the goals of the Endangered Species Act.

I think the diversity for which you speak should have nearly universal support, so far as we can achieve that goal.

STATEMENT OF JAMES WILLIAMS

Dr. WILLIAMS. Mr. Chairman, I am Dr. James Williams of the U.S. Fish and Wildlife Service. I have been employed for the past 3 years as a biologist in the Office of Endangered Species. I would like to point out that while working with the Endangered Species Act and its provisions, we have had few problems in the interpretation of species, subspecies and lesser species.

We have usually had no problem in the assignation of endangered and threatened status to particular species. I think the act as it presently exists, fulfills all of the needs, in terms of listings, specifically with regard to what is appropriate for listing and the methods for their determination.

Senator McCURE. You wouldn't change those procedures?

Dr. WILLIAMS. I would not. In cases where adequate documentation is lacking for some species, we have been able to go to biologists, either to get the additional available information or to let contracts so as to acquire the additional information required. In no case have we had problems dealing with the terms as they are defined in the act.

Senator McCURE. Let me return for one moment to the comment that was made by Dr. Raney in opening this panel. His concerns have been expressed to me and I know other members of the committee and the Congress by a number of people outside of the Congress and outside of any special interest group, so far as I know.

In any human activity, whether it is a Federal project or a State action, there is a certain interaction with the plant and animal community. If the human activity is very extensive at all, the likelihood exists that someone looking at it closely enough can identify something in the plant or animal or insect world that is unique to that particular area or is being affected by this human activity.

The question, then, is whether or not the identity process by those who wish to prohibit this human activity can obstruct, at least for some period of time, the activity on the basis of using this act for that purpose rather than for the purpose for which the act was passed.

Dr. Raney?

Mr. RANEY. Senator, I would be glad to comment on that question. I think that is exactly what happened in the snail darter case. Back in 1972 or 1973, there was an effort to stop the building of the Tellico Dam, because the Little Tennessee is a good brown trout stream. It is a good brown trout stream because there are 20-plus dams located upstream. I believe Fontana Dam has the major role in controlling water temperature; it forms a deep reservoir. Thus the tailwater of the Little Tennessee below the Chilhowee Dam is cold—basically 40° F. year round. An excellent brown trout tailwater fishery exists. Shortly after a new environmental report was produced by TVA, a biologist from the University of Tennessee claimed that there probably were three supposedly threatened species living in the lower Little Tennessee River. We subsequently disposed of this argument as having no substance.

In 1973, a biologist from the University of Tennessee went on a field trip with a group of students, found the snail darter, wrote a manuscript, and on the basis of that manuscript this fish was placed on the threatened and endangered list. The assumption, on the basis of very little fieldwork, was that the critical habitat of the snail darter was from river mile 4 to 17 in the Little Tennessee.

Subsequently, TVA biologists began intensive studies. They found it at Little Tennessee River mile zero in greater numbers than it had ever been taken anywhere else.

The critical habitat then was modified by Interior to include the region from the Tellico Dam—0 to 17 miles. My suggestion, with the concurrence of TVA biologists, was that the snail darter must be a big river species. It must exist in the Tennessee River. The Little Tennessee is a tributary of the Tennessee River. We went out by helicopter, and located the old shoals that had been in existence before the dams were built on the Tennessee River. I pointed out the places where the snail darter would be found if we were able to look. TVA used scuba teams because, in the Tennessee River, it is difficult when you get close to the bottom—the snail darter is a bottom dwelling species basically—sometimes because of turbidity one can only see 6 or 7 inches. You have to crawl around on the bottom. But by doing this, and by working at the most ideal times as far as water clarity was concerned, TVA biologists found them at Tennessee River mile 12 downstream from the Tellico Dam, and as far downstream as 80-plus miles—by biologist David Turner. In the meantime, I wrote to the Department of the Interior and indicated the snail darter does occur in the Tennessee River.

Nevertheless, the critical habitat was determined by Interior and published in the Federal Register as 0 to 17 miles of the Little Tennessee River.

This is the reason for my brief opening statement. I was talking about fishes and not only about darters, but minnows, suckers, catfishes—the number of catfishes described has about doubled in the

last 10-plus years—and others. If you consider crayfishes, fishes, and the organisms that fishes feed on—these are all subject to listing as threatened and endangered—I repeat my statement: With a group of knowledgeable experts and by doing the same thing that was done with the snail darter, we could stop every major structure, all dams, all nuclear plants, all big fossil fuel plants, most coal mining attempts, in the Southeastern United States or at least in the area that was not covered by Pleistocene ice.

One of the indications that this statement is not an exaggeration is that almost weekly new descriptions of new aquatic species appear.

Are we going to list smaller species such as the animals that fish depend upon for food? Many of these, as far as we know, like midge larvae which spend part of their life in the water, have limited distributions. There are thousands of species and I predict that there are thousands of undescribed species.

I am concerned and because I have been a student of fishes most of my life, I am sympathetic toward the act. I think that the decision to designate a critical habitat too fast is part of the reason we find ourselves in the present situation with the Tellico Dam. The snail darter was a lucky find and too little investigation was carried out before the decision was made on the designation of the critical habitat by the Department of Interior.

Dr. WILLIAMS. Mr. Chairman?

Senator McCURE. Let me say to the witnesses, I don't mean to stifle the discussion. It is only getting well started, I am certain. We are transgressing the rules of the Senate in continuing this hearing. I am also due two other places right now. So I am going to have to adjourn very quickly. I will permit you to respond.

Dr. WILLIAMS. This will be very brief. First of all, the manuscript to which Dr. Raney refers was submitted to our office. It just happened that I am an expert on this group of fishes. In fact, I have described recently a new species in this group. By the way, this fish is not a candidate for listing, and is not even a potential "dam stopper." Along these lines, I would disagree that Dr. Raney can stop any project in the Southeast by going out and looking hard enough for a candidate species. That is simply not true.

Senator McCURE. It has been suggested that the resolution of the difference between you two is a political decision that we must make.

I am sure you scientists must feel very secure in that judgment.

Dr. WILLIAMS. We have in the listing process the same provisions for delisting as we have for listing. In the listing process for the snail darter, when it was proposed, it was reviewed by the scientific community, TVA, the public, and the State. We accepted comments for at least 90 days, after which a final rulemaking decision was made accordingly. We received no information which led us to believe anything other than that the fish was in fact restricted to the Little Tennessee River and that it was in fact endangered.

As for the critical habitat, which was a separate determination action, we based that decision on the best scientific data available at the time, which indicated that the snail darter was found only in the Little Tennessee River. At that time, we did not know, Dr. Raney did not know, and TVA did not know of the drift pattern of the larval fishes in the downstream reservoir.

We did receive some comments that insufficient information was available to designate any critical habitat. Instead of taking this approach, we designated only that which we know to be critical. In the future, new information may lead us to propose additional critical habitat or to propose a reduction of that previously determined.

I feel that TVA's purported snail darter record 80 miles downstream from the Tellico site should be clarified. That record was a sight record made by an individual, not a biologist. I might add that sight records of any fish are unreliable at best.

Senator McCLURE. Maybe a Member of Congress.

Dr. WILLIAMS. Perhaps; at a depth of some 4 to 6 feet, in unclear water he got a very fleeting glance of a fish. I think that if there were a good healthy population of snail darters at river mile 85, the Tennessee Valley Authority would have documented it by now. To my knowledge, they have not.

Senator McCLURE. Thank you very much. I do appreciate your testimony and, again, I would invite any further statement you would like to make and any commentaries upon the testimony or the questions that have been made.

With that, the committee stands adjourned.

[Whereupon, at 1 p.m., Wednesday, July 20, 1977, the subcommittee was recessed, to reconvene at 10 a.m., Thursday, July 21, 1977.]

[The paper submitted by Dr. Raney follows:]

ICHTHYOLOGICAL ASSOCIATES, INC.

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22 July 1977

Statement by Dr. Edward C. Raney
 Professor of Zoology Emeritus, Cornell University
 and President, Ichthyological Associates, Inc., Ithaca, New York
 Before the U. S. Senate Subcommittee on Resource Protection

20 July 1977

THE ENDANGERED SPECIES PROBLEM

The Endangered Species Act of 1973
 (P.L. 93-205/87 Stat. 884/16 U.S.C. 1531/1534)

December 28, 1973

Prelude

On 11 July 1977 I received a call from a member of the staff asking if I would serve on a panel of experts who would be asked on 20 July to discuss the Act. I agreed to do so. However, on 20 July 1977 little time was available to discuss the problems which I find with the Act and its administration, but I did give a few minutes leadoff testimony (of the technical panel) pointing out that in much of the United States, particularly in the southeastern United States which had been unaffected by the Pleistocene glaciers, many undescribed species of aquatic organisms existed. I predicted that I could by taking 20 or so experts in the various fields of aquatic biology, describe new species from almost any locality and if these species were pushed

onto the Threatened and Endangered List, as was the case with the snail darter, that it would be impossible in the future to build dams, nuclear plants, large fossil fuel plants, many coal mines or any other large structure that would involve the use of considerable water or which would be situated near a river or creek. In fact, I could do this by calling on the more than 300 specialists who are now working with me in the aquatic ecology field in my corporation, Ichthyological Associates, Inc.

The above was the extent of my introductory remarks. However, near the end of the session by answering a question posed by Senator McClure I was able to give an example of how, in my opinion, the so-called threatened and endangered snail darter was used to halt construction on the Tellico Dam at a time when it was very close to completion, when in fact several earlier attempts had failed to preserve the lower Little Tennessee River as a brown trout fishery. Impounding would not have destroyed the fishery and possibly would have improved it. This part of the record I do not intend to repeat in the summary of my testimony which follows.

The Problem

The Act provides a means to conserve the habitats of those plant or animal species which are judged by the Secretary of the Interior to be threatened or endangered. Up until this time the courts have upheld the Act's language and unless Congress grants a specific exemption or the Secretary of the Interior or the Secretary of Commerce permits a change of the status of the species or recognizes the limitations originally placed upon the critical habitat, no work on energy producing programs or other useful construction may occur.

It is also a problem to me, a student of small fishes for more than 45

years, to even go into a stream where a supposed threatened or endangered species exists (or is on the official list) without risking arrest and imprisonment. This actually has occurred in my case and may illustrate what will happen in the future. A scientific colleague, Dr. Frank Schwartz, of the University of North Carolina, Morehead City and I rediscovered the Maryland darter in lower Deer Creek (a tributary of the lower Susquehanna River) about 10 years ago. For over 50 years only a single specimen had been taken at the type locality, which was Swan Creek, Maryland. It was obvious that the species was very scarce in Swan Creek, which was deemed to have been the type locality, that is, the area from which the darter was originally described. However, we found it to be abundant in Deer Creek. Other ichthyologists were able to go to Deer Creek and find it and observe it. However, it was placed on the Threatened and Endangered List. This meant that scientists could no longer go to the Creek, walk in the Creek, collect fishes in the Creek without having secured a special permit from the bureaucracy set up to handle such matters in the Department of the Interior. I talked to my friend, Robert Rubelmann, Maryland Fisheries Administrator on one occasion and said that I would like to return to Deer Creek to take a look at the Maryland darter and observe its habits. He warned me that if I did I would be subject to arrest. I assume therefore that once a fish is placed on the List that it is no longer possible, except by permit, to collect or to study it. Permits are hard to come by and involve much bureaucratic red tape. Occasionally I am concerned, as one who has studied these small fishes throughout his life, that I no longer can do so. I realize that this may appear to be a minor point as compared to the stoppage of the completion of Tallico Dam, but it is one of the amenities

of life that many enjoy which now in a practical sense is forbidden.

The Species Problem

Congress, in its wisdom in passing the Act was, I am sure, concerned with major species which would include the sandhill crane; the grizzly bear, the American alligator and numerous other large animals.

I doubt that most Congressmen realized that the Act would apply to literally millions of species of plants and animals, the exception being obnoxious insects.

Probably most members of Congress had not considered actually what a species is except for those that they are in contact with from day to day. A species, whether it be plant or animal, may be defined in a number of ways. However, a species constitutes a group of organisms with common structural and behavioral characteristics. Members of the species or group interbreed freely, but occasionally breed with other species (usually by accident) to form hybrids. The structural differences between many related species is slight, both morphologically and behaviorally, and these species are recognizable only to specialists who have been trained in a given field. Such specialists are found at the Smithsonian Institution (Museum of Natural History) and at numerous universities and other collections. These collections are even more important as a result of the passage of the Act and I agree with the fine statement which Dr. Steven Edwards, Executive Secretary, Association of Systematic Collections, was able to make and file with the Committee.

The question of how many species exist on earth is moot. Probably more than 1,500,000 have been identified and additional species are being described almost daily in one of the hundreds of scientific journals, most of which specialize in a given field (of plants or animals). Probably more than 10,000

new species are being discovered and described each year. Perhaps as many as five million species exist on earth and it is generally agreed by specialists that since the beginning of life on earth far more species have passed out of existence than are now alive.

Many species have very limited range of distribution, or are thought to. Many conclusions on the range are based upon limited observations due to access, time and funds available for studies. Few studies of small, unimportant species are done except by specialists and mostly because of the lack of specialists and funds. Most specialists become trained in the study of one or two families or subfamilies and their relationships may take many years of work both in and out of museums to come to tentative conclusions with regard to evolutionary pathways.

Many species have limited ranges. A few are found only in the most isolated headwater creeks. Others may have limited ranges in big rivers, but the described range or critical habitat is often difficult to determine, particularly in bigger waters.

Dr. Bruce Collette, a trained and knowledgeable ichthyologist working for the National Marine Fisheries Service in the Smithsonian Institution, estimates that at present there may be on the order of 20,000 fishes. Of these, approximately 40% are found in freshwater. He also pointed out in his testimony on 20 July 1977 before the Committee that there may be as many as 20,000 other vertebrate animals for a general total of about 40,000. He also estimated that there are about 746 full species of freshwater fishes in the United States and Canada and that at least 50 of these are undescribed. Ultimately many subspecies will be recognized when the above are thoroughly studied throughout their ranges and many of these will be of limited distribution and probably will

go on the Threatened and Endangered List. Dr. Collette also estimates that there are 160 forms included in the family Percidae, which includes the group of fishes known as "darters". Most darters are small and live on or near the bottom in most freshwater aquatic habitats.

If we consider only the darters, and they are but one of many families of fishes, we conclude that the geographical histories of various regions have played an important part in determining the number of darters now living in various parts of the United States and Canada. For example, Canada and many parts of the northern United States were covered by ice up until approximately 12,000 years ago. Any darters or other fishes which may have existed in that area were eliminated or forced to retreat to the south. In the south during this same period when much of the moisture was locked in northern ice, the seas receded and sandy soils developed. As the seas rose the fishes made their way back into the rivers and estuaries which developed.

This contrast in number of species found in the United States and Canada is of interest. For example, of the 700 or more described species, more than 300 are native to the southeastern United States. More than 200 fishes have been identified in the State of Tennessee alone. A consideration of the distribution of darters based upon various state lists which are not always up-to-date indicate that among the described species Tennessee has 77 darters, while only 11 are found in all of Canada, 1 in Montana, 17 in New York State, 2 in New Hampshire, 22 in Ohio and 26 in Mississippi.

It should be emphasized that fishes, including darters, feed on a multitude of different species, many of which have not been described. Any group of aquatic insects, worms, zooplankters and so forth which are worked on in detail

yield many undescribed species. Under the Act each of these could, if the habitat were limited and the range relatively small, end up on the Threatened and Endangered Species List. It is obvious that this List is growing monthly and will continue to do so in the future. In fact, the Secretary of the Interior (or Commerce) must list such species, subspecies, suspected species or even minor groups of individuals that might be endangered or threatened in the foreseeable future and as a practical matter, under these limitations of the law almost every new plant or animal discovered and described immediately qualifies for endangered status. This status would continue until the true range could be established. This process could take decades of intensive scientific effort which would call for searching new areas and/or matching descriptions with catalogue specimens in museums. The vital necessity of preserving adequate numbers is obvious and was pointed out by Dr. Steven Edwards on 20 July.

Problems in Determining the Relationship of Newly Described Species and in Determining the Critical Habitat

It is often difficult to determine the status of a newly collected form unless the group of animals (such as darters) had been thoroughly investigated by other scientists. Many times this has not been done. It is most difficult to find the critical habitat of many of these species because of the difficulties of making the investigations. This depends upon the thoroughness of collections made and these are always limited. In large waters particularly, such as the Tennessee River, studies are difficult. The water is often fairly deep and during the warmer season is often very turbid. To do a good job all types of expensive gear must be used in all depths and in all seasons because the habitat

often changes with or at spawning time or with other requirements such as feeding. Fortunately many new types of gear have been developed, such as special nets, electrofishing and the use of scuba gear, so that large river fishes may be investigated if the funds are available. For the most part they are not.

It is also very important to remember that some species are very short lived, that is, two to four years. All animals and particularly fishes which have been studied intensively have been shown to vary greatly in numbers from year to year. These are known as year class fluctuations. What may appear to be a rare fish on one occasion may be a common fish over a wider range on another occasion because fishes (many of them) do move around. Their numbers may be influenced by competition with others of the same species or of other species and predation is always a problem with regard to small fishes.

Conclusion

I would recommend that the authorities charged with the administration of the Act take a more reasonable attitude toward the determination of whether a species is actually threatened and endangered and certainly more time in investigation is required to determine the critical habitat. The relatively small staff assigned to this in the Department of the Interior and in the Department of Commerce, even with the help of the excellent scientists in the Smithsonian Institution, can in most cases only do a superficial job unless they happen to be specialists in a particular group in which the endangered species occurs.

Finally, I urge that Congress be alerted to the use (perhaps unintentional by the bureaucrats in Washington) of the discovery of a so-called threatened and endangered species and the delimitation of a critical habitat to stop large

projects until every reasonable effort has been made to determine the basic facts. In my opinion this was not done with regard to the Tellico project. A long battle to preserve the area as a brown trout fishery and as a natural river finally was won by listing a still undescribed species of darter and delimiting its critical habitat without thorough study. The Congress had approved the project, had continued to supply the funds and had been kept informed. The conservatism in the Department of the Interior in failing to delist the snail darter does not inspire confidence in their reasonableness in handling important and critical situations.

References

References to various data given above are not included, but will be supplied upon request.

Qualifications of Edward C. Raney, Ph.D.

Professional qualifications as of 26 March 1976 are attached.

Appreciation

I am happy to have had the opportunity to present my view or comments and to answer Senator McClure's critical question. I am hopeful that the above document may be made a part of the Record.

Edward C Raney

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14 May 1976

Professional Qualifications of EDWARD C. RANEY, Ph.D.

Is Director of Research, President and Chairman of the Board of Ichthyological Associates, Inc. As such I am responsible for the activities of more than 200 scientists who are dedicated to aquatic and terrestrial ecological research in eastern North America.

Is Professor of Zoology, Emeritus (31 August 1971) at Cornell University, Ithaca, New York. During the period between 1936 to 1971 I served successfully at Cornell as Assistant Instructor, Assistant Professor, Associate Professor and Professor of Zoology. My duties involved teaching and research in the field of Vertebrate Zoology with emphasis on Ichthyology. My scientific specialty is the study of the ecology, behavior and systematics of fishes.

Place and Date of Birth:

Pittsburgh, Pennsylvania, 23 May 1909.

Education:

Ph.D., Cornell University, Ithaca, New York, 1938; M.S. Cornell University, 1935; B.S. State College, Slippery Rock, Pennsylvania, 1931.

Other Formal Appointments:

1968 Research Associate, Mote Marine Laboratory, Siesta Key, Sarasota, Florida. Director of Biological Survey of Charlotte Harbor and adjacent areas.

1964 November to December Senior Scientist, Cruise 9 Research Vessel Anton Bruun, American Program in Biology, Indian Ocean Expedition.

1953 to 1957 (part-time) Coordinator of the Atlantic States Cooperative Striped Bass Program of the Atlantic States Marine Fisheries Commission as Fishery Biologist, U.S. Fish and Wildlife Service.

1948 (summer) Expert Ichthyologist, U.S. National Museum, Washington, D.C. Worked on the identification of fishes taken at Bikini in connection with the atom bomb tests.

1942 to 1948 Lt. (j.g.), Lt., Lt. Comm. USNR; active duty 1942 to 1945.

1939 (summer) Research Associate, Edmund Niles Huyck Preserve, Rensselaerville, New York; made a study of the food of chain pickerel in small ponds.

1937, 1938, 1940, 1941, 1942, 1952 (summer) Fishery Biologist, New York State Conservation Department. Made stream surveys of trout and warm water fishes such as smallmouth bass, perch, etc., marine and freshwater fishes of Long Island, muskellunge in Chautauqua Lake, whitefishes and walleye in Lake Ontario, striped bass in the Hudson River and mapped the fish fauna of New York State.

Before 1936 Served as a biology teacher, Oneonta, New York State University College (fall term 1935) and a Science and Mathematics teacher and athletic coach at Shenango High School, New Castle, Pennsylvania and at Ben Franklin Junior High School, New Castle, Pennsylvania (1931 to 1935).

Advisory Committees:

American Nuclear Society Standards Committee; ANS-18 Environmental Impact Evaluation, Protection of Aquatic Organisms, 1972 to 1973.
 National Academy of Engineering, Committee on Power Plant Siting, 1971.
 National Water Commission; Ecology Panel, 1970 to 1972.
 Atomic Industrial Forum, Committee on Environmental Law and Technology, 1970 to 1971.
 Study of Connecticut River related to Connecticut Yankee Atomic Power Station, Haddam Neck, Connecticut, 1965 to 1974.
 National Science Foundation, Consultant to Committee on Facilities and Special Program, Division of Biological and Medical Sciences, 1964 to 1970.
 National Science Foundation, Committee on Inland Biological Stations, 1963 to 1964.
 Consultant, New York Legislature: New York State Joint Legislative Committee on Revision of Conservation Law, 1956 to 1960.
 Institute of Fisheries Research of the University of North Carolina, Morehead City, North Carolina, 1956 to 1960.
 Commercial Seafoods Division of the Louisiana State Conservation Commission, 1952 to 1956.
 American Institute of Biological Sciences, Biological Films Committee.

Membership in Professional Societies:

The Ecological Society of America.
 American Institute of Fishery Research Biologists (Fellow)
 American Fisheries Society (Representative on Council of American Association for the Advancement of Science 1963 to 1967).
 American Institute of Biological Sciences.
 American Society of Ichthyologists and Herpetologists (President, 1955 to 1956; Secretary, 1948 to 1951). Representative on Governing Board of American Institute of Biological Sciences and representative on Division of Biology and Agriculture, National Research Council (1949 to 1951). Representative on Council of American Association for the Advancement of Science, 1957.
 American Society of Limnology and Oceanography.
 American Society of Zoologists.
 Animal Behavior Society.
 Association for Tropical Biology.
 Biological Society of Washington.
 Herpetologists League (Fellow).
 The International Oceanographic Foundation.
 The Marine Biological Association of the United Kingdom.
 The Systematics Association.
 Society for the Study of Evolution.
 Society of Systematic Zoologists.
 American Society for the Advancement of Science (Fellow), Member of Council (1957 to 1959).
 American Littoral Society.
 Gulf and Caribbean Fisheries Institute.
 Western Society of Naturalists.
 Oceanic Society.
 Estuarine Research Society.
 Atlantic Estuarine Research Foundation.
 Western Society of Naturalists.
 Woods Hole Ocean Institution.
 American Chemical Society.

Honorary Fraternities:

Phi Gamma Mu, Phi Kappa Phi, Phi Sigma Pi, Sigma Xi (Treasurer, Cornell Chapter, 1955 to 1956).

Listings:

American Men of Science, Who's Who, Who's Who in the East, Who Knows What.

Editor:

Served on Editorial Board of Copeia (Amer. Soc. Ichthy. and Herp.), The Journal of the Fisheries Research Board of Canada and the American Midland Naturalist.

Grants for Research from:

American Association for the Advancement of Science; U.S. Public Health Service; National Science Foundation; Sport Fishing Institute; U. S. Department of the Interior; U. S. Fish and Wildlife Service; U. S. Office of Water Resources Research; Manufacturing Chemists Association.

Nature of Studies:

Field studies of the ecology and behavior of fishes. Laboratory studies of the systematics of fishes. In charge (until August 1971) of Fish Collection at Cornell University, 70,000 series of fishes, more than one million specimens.

My ichthyological studies include all rivers (or tributaries of) in eastern North America from the Connecticut River southward to Florida.

Experimental studies designed to provide information on the effects of heated effluents on fishes have been carried on over the past seven years. These include studies of the swim speed of fishes, of the thermal preference, attraction and repellant of fishes.

Have directed studies in regard to the following:

Population changes below dams.

Prevention of fish mortalities below dams (Conowingo).

Feasibility of passage of shad and other anadromous fishes over dams (Lower Susquehanna River).

Effects of pumped storage projects on fishes and other organisms (Muddy Run, Northfield, Stony Creek, Tom Sauk, Raccoon Mountain, Blenheim-Gilboa).

Evaluation of populations of fishes and other aquatic organisms in areas where heated effluents are expected from nuclear plants (Peach Bottom, Salem, Newbold, Limerick, Atlantic Generating Station, Summit, Zion, Cook, Indian Point, Susquehanna).

Screening and guiding problems in protecting fishes at intakes and effluents (Muddy Run, Peach Bottom, Connecticut Yankee, Vermont Yankee, Vernon, Northfield).

Effects of heated plumes on aquatic organisms (Connecticut Yankee, Mercer, Burlington, Eddystone, Chester, Edge Moor, Schuylkill).

Scientific Publications:

More than 110 papers on fishes and other vertebrates. Most are in the field of fishery biology and ichthyology, and include observations on the life history of many species found in eastern U.S. including studies on food and growth of the common bullhead, chain pickerel, brown trout and several suckers. Also worked on the pond propagation of minnows for use in fish cultural projects; and investigated the summer food, growth and movements of the walleye (yellow pike-perch). Has described many new species of fishes from eastern U.S. Recent work includes studies of racial stocks of striped bass and bluefish. Popular publications: several hundred articles in the *Wise Fishermen's Encyclopedia* and *Collier's Encyclopedia*.

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A list of the fishes described by
Edward C. Raney and Coauthors

<u>Hadropterus oxyrhynchus</u>	Hubbs, C. L. and E. C. Raney	1939
<u>Percina oxyrhyncha</u>		
<u>Poecilichthys kanawhae</u>	Raney, E. C.	1941
<u>Etheostoma kanawhae</u>		
<u>Fundulus waccamensis</u>	Hubbs, C. L. and E. C. Raney	1946
<u>Menidia extensa</u>		
<u>Boleosoma perlongum</u>		
<u>Etheostoma perlongum</u>		
<u>Thoburnia hamiltoni</u>	Raney, E. C. and E. A. Lachner	1946
<u>Moxostoma hamiltoni</u>		
<u>Hypentelium rosnokense</u>	Raney, E. C. and E. A. Lachner	1947
<u>Notropis alborus</u>	Hubbs, C. L. and E. C. Raney	1947
<u>Hadropterus notogrammus</u>	Raney, E. C. and C. L. Hubbs	1948
<u>Percina notogramma</u>		
<u>Ichthyomyzon hubbsi</u>	Raney, E. C.	1952
<u>Notropis baileyi</u>	Suttkus, R. D. and E. C. Raney	1955
<u>Notropis hypsilepis</u>	Suttkus, R. D. and E. C. Raney	1955
<u>Notropis asperifrons</u>	Suttkus, R. D. and E. C. Raney	1955
<u>Moxostoma ariommum</u>	Robins, C. R. and E. C. Raney	1956
<u>Moxostoma lachneri</u>		
<u>Etheostoma moorei</u>	Raney, E. C. and R. D. Suttkus	1964
<u>Etheostoma rubrum</u>	Raney, E. C. and R. D. Suttkus	1966
<u>Etheostoma microlepidum</u>	Raney, E. C. and T. Zorach	1967

- Hubbs, C. L. and E. C. Raney 1939. Hadropterus oxyrhynchus, a new percoid fish from Virginia and West Virginia. Occ. Pap. Mus. Zool. Univ. Mich. 396: 1-9.
- Raney, E. C. 1941. Poecilichthys kanawhae, a new darter from the upper New River system in North Carolina and Virginia. Occ. Pap. Mus. Zool. Univ. Mich. 434: 1-16.
- Hubbs, C. L. and E. C. Raney 1946. Endemic fish fauna of Lake Waccamaw, North Carolina. Mus. Zool. Univ. Mich. No. 65: 1-30.
- Raney, E. C. and E. A. Lachner 1946. Thoburnia hamiltoni, a new sucker from the upper Roanoke River system in Virginia. Copeia (4): 218-226.
- Raney, E. C. and E. A. Lachner 1947. Hypentelium roanokense, a new catostomid fish from the Roanoke River in Virginia. Amer. Mus. Novitates. No. 1333: 1-15.
- Hubbs, C. L. and E. C. Raney 1947. Notropis alborus, a new cyprinid fish from North Carolina and Virginia. Occ. Pap. Mus. Zool. Univ. Mich. 498: 1-17.
- Raney, E. C. and C. L. Hubbs 1948. Hadropterus notogrammus, a new percoid fish from Maryland, Virginia, and West Virginia. Occ. Pap. Mus. Zool. Univ. Mich. No. 512: 1-26.
- Raney, E. C. 1952. A new lamprey, Ichthyomyzon hubbsi, from the upper Tennessee River system. Copeia. (2): 93-99.
- Suttkus, R. D. and E. C. Raney 1955. Notropis baileyi, a new cyprinid fish from the Pascagoula and Mobile Bay drainages of Mississippi and Alabama. Tulane Stud. Zool. 2(5): 71-86.
- Suttkus, R. D. and E. C. Raney 1955. Notropis hypsilepis, a new cyprinid fish from the Apalachicola River of Georgia and Alabama. Tulane Stud. Zool. 2(7): 161-170.
- Suttkus, R. D. and E. C. Raney 1955. Notropis asperifrons, a new cyprinid fish from the Mobile Bay drainage system of Alabama and Georgia, with studies of related species. Tulane Stud. Zool. 3(1): 1-33.
- Robins, C. R. and E. C. Raney 1956. Studies of the Catostomid fishes of the genus Moxostoma, with descriptions of two new species. Cornell Univ. Ag. Exp. Sta. Memoir 343: 1-56.
- Raney, E. C. and R. D. Suttkus 1964. Etheostoma moorei, a new darter of the subgenus Nothonotus from the White River System, Arkansas. Copeia (1): 130-139.
- Raney, E. C. and R. D. Suttkus 1966. Etheostoma rubrum, a new percoid fish of the subgenus Nothonotus from Bayou Pierre, Mississippi. Tulane Stud. Zool. 13(3):95-102.
- Raney, E. C. and T. Zorach 1967. Etheostoma microlepidum, a new percoid fish of the subgenus Nothonotus from the Cumberland and Tennessee River systems. Am. Midl. Nat. 77(1):93-103.

Graduate Students who took advanced degrees
with Edward C. Raney at Cornell University

- Lachner, Ernest A., Ph.D. 1946 Studies of the biology of the chubs (genus Nocomis, family Cyprinidae) of northeastern United States.
- Kelley, George F., M.S. 1947.
- Harrington, Robert W., Jr., Ph.D. 1947 A contribution to the biology of the bridled shiner, Notropis bifrenatus (Cope).
- Pfeiffer, Roman A., Ph.D. 1947 Studies on the life history of the rosy-face shiner, Notropis rubellus (Agassiz).
- Kezer, Leonard J., Ph.D. 1948 The chromosomes of plethodontid salamanders, with special reference to the genera Desmognathus and Plethodon.
- Underhill, Adna H., Ph.D. 1948 Studies on the life history of the chain pickerel, Esox niger LeSueur.
- Walter, Vladimir, M.S. 1948.
- Byrn, John W., M.S. 1948.
- Suttkus, Royal D., Ph.D. 1950 A taxonomic study of five cyprinid fishes related to Notropis hypselopterus of southeastern United States.
- Ross, Robert D., Ph.D. 1952 The subspecies and races of the cyprinid fish Campostoma anomalum (Rafinesque) in eastern United States.
- Backus, Richard H., Ph.D. 1953 The marine and freshwater fishes of Labrador.
- Crawford, Ronald W., Ph.D. 1953 A study of the distribution and taxonomy of the percid fish, Hadropterus nigrofasciatus Agassiz, throughout the southeastern United States.
- Hecht, Max K., Ph.D. 1953 A review of the salamander genus Necturus Rafinesque.
- Illick (Breed), Helen J., Ph.D. 1953 A comparative study of the lateral-line system on the head of North American Cyprinidae.
- Mehring, Albert G., M.S. 1953 A comparison of several populations of striped bass, Roccus saxatilis (Walbaum), with reference to racial investigations.
- Wigley, Roland L., Ph.D. 1953 Life history of the sea lamprey, Petromyzon marinus (Linnaeus) of Cayuga Lake, New York.

Brown, Jerram L., M.A. 1954 A review of the cyprinodont genus Fundulus of eastern United States.

Robins, Charles R., Ph.D. 1954 A taxonomic revision of the Cottus bairdi and Cottus carolinae species group in eastern North America (Pisces, Cottidae).

Deubler, Earl E., Jr., Ph.D. 1955 A taxonomic study of the cyprinid fish, Clinostomus vandoisulus (Valenciennes), in eastern United States.

Gibbs, Robert H., Jr., Ph.D. 1955 A systematic study of the cyprinid fishes belonging to the subgenus Cyprinella of the genus Notropis.

Woolcott, William S., Jr., Ph.D. 1955 Comparative osteology of serranid fishes of the genus Morone (Mitchill) and infraspecific variation in Morone americanus (Gmelin).

Outten, Lora M., Ph.D. 1956 Studies of the life histories of the cyprinid fishes Notropis coccogenis, Notropis galacturus and Notropis rubricroceus.

Lewis, Robert M., M.S. 1956 A comparative study of populations of the striped bass, Roccus saxatilis (Walbaum), based on gill raker counts.

Cole, Charles F., Ph.D. 1957 The taxonomy of the percid fishes of the genus Etheostoma, subgenus Boleosoma, of eastern United States.

Lund, William A., Jr., M.S. 1956 A morphometric study of the striped bass, Roccus saxatilis (Walbaum).

Ph.D. 1960 A racial investigation of the bluefish, Pomatomus saltatrix (Linnaeus), of the Atlantic coast of North America.

de Sylva, Donald P., Ph.D. 1958 The life history and systematics of the great barracuda, Sphyræna barracuda (Walbaum).

Murawski, Walter S., M.S. 1958 Comparative study of populations of the striped bass, Roccus saxatilis (Walbaum), based on lateral-line scale counts.

Collette, Bruce B., Ph.D. 1960 The systematics and biology of the darters of the subgenera Hololepis and Villora (Pisces, Percidae).

Miller, Rudolph J., Ph.D. 1961 Studies on the behavior, morphology, and ecology of three North American cyprinid fishes (Pisces, Cyprinidae).

Carlson, Bruce M., M.S. 1961 A chromatographic analysis of the bound amino acids in lamprey muscle (Petromyzontidae).

Bane, Gilbert W., Jr., M.S. 1961 The distribution and abundance of tunas and tuna bait fishes in the Gulf of Guinea.

Ph.D. 1963 The biology of the yellowfin tuna, Thunnus albacares (Bonnaterre) in the Gulf of Guinea.

- Foster, Neal R., M.S. 1961 The reproductive biology of eight species of American oviparous cyprinodont fishes.
- Ph.D. 1967 Comparative studies on the biology of killifishes (Pisces, Cyprinodontidae).
- Francois, Donald D., Ph.D. 1962 A revision of the Australian crayfish genus Euastacus (Decapoda, Parastacidae).
- Rothschild, Brian J., Ph.D. 1962 The life history of the alewife, Alosa pseudoharengus (Wilson), in Cayuga Lake, New York.
- Richards, William J., Ph.D. 1963 Systematic studies of some darters from southeastern United States (Pisces, Percidae).
- Knapp, Leslie W., Ph.D. 1964 Systematic studies of the rainbow darter, Etheostoma caeruleum (Storer), and the subgenus Hadropterus (Pisces, Percidae).
- Miller, Robert V., Ph.D. 1964 A systematic study of the greenside darter, Etheostoma blennioides Rafinesque.
- Reed, James R., Jr., M.S. 1964 A racial study of the blueback herring, Alosa aestivalis (Mitchill).
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ENDANGERED SPECIES ACT OVERSIGHT

THURSDAY, JULY 21, 1977

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON RESOURCE PROTECTION,
Washington, D.C.

The subcommittee met at 9:50 a.m., in room 4200, Dirksen Senate Office Building, Hon. John C. Culver (chairman of the subcommittee) presiding.

Present: Senators Culver and Wallop.

OPENING STATEMENT OF HON. JOHN C. CULVER, U.S. SENATOR FROM THE STATE OF IOWA

Senator CULVER. The hearing will come to order.

I want to welcome you this morning to this Resource Protection Subcommittee hearing on the implementation of the Endangered Species Act of 1973. As you know, this is the second of four hearings reviewing the progress and problems that we have encountered under this program.

Today we will specifically focus on the Tellico Dam project. Recently, the Sixth Circuit Court of Appeals overturned a District Court ruling and permanently enjoined the Tennessee Valley Authority from completing the closing of the dam at Tellico.

This ruling was made because the appeals court determined that the project would completely destroy the critical habitat of the snail darter, which is an officially listed endangered species. I am hopeful today's hearing will fully reveal the history of this case, and that we will be able to develop a factual record on which to base any appropriate action to resolve this impasse.

I think it is important that we fully understand all developments in this issue before deciding what course to take. We have an excellent group of witnesses this morning.

I am very pleased that you are here, and I am confident this hearing will be informative and productive. To allow time for questions and answers, I would appreciate it if each witness would limit his or her oral comments to a 10-minute statement, and any written remarks you have will be made a part of the record.

Is Mr. Canfield here? Mr. Canfield, would you be good enough to identify yourself and your office for the record, please.

(177)

STATEMENT OF MONTE CANFIELD, JR., DIRECTOR, ENERGY AND MINERALS DIVISION, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY DAVID CAHALEN, ASSISTANT DIRECTOR; DANIEL SPENGLER, SUPERVISORY MANAGEMENT ANALYST, AND DONALD HOWARD, PROJECT MANAGER, ATLANTA REGIONAL OFFICE

Mr. CANFIELD. Yes, Senator. Thank you very much. I am Monte Canfield, Jr. I am Director of the Energy and Minerals Division of the General Accounting Office. My colleague on my immediate left is Dave Cahalen, who is Assistant Director, Don Howard, who is project manager in our Atlanta regional office, and Daniel Spengler, who is a supervisory management analyst in my division.

My prepared statement is quite short and probably fits in the time frame. There is an appendix that makes it look more bulky than it is.

We appreciate your invitation to discuss the tentative conclusions of our study on the costs, alternatives, and benefits for the Tellico water resources project. As you know, we are in the process of incorporating agency comments into our report, which we hope to issue in a matter of weeks.

In January 1977, a Federal court of appeals halted completion of the Tellico Dam because it would destroy the critical habitat of the snail darter, a 3-inch fish protected by the Endangered Species Act. Shortly thereafter, the chairman of the House Committee on Merchant Marine and Fisheries, John Murphy; Senator James Sasser; and Representative John Duncan, of Tennessee, requested GAO to assist in assessing the issue by, one, identifying what portion of project expenditures would provide benefits if the project were not completed; two, identifying alternative methods to operating the completed project that would not adversely impact the snail darter, and, three, examining the benefits that would occur if the project is completed. We were asked to include in our analysis the "real" costs and benefits, including "unquantifiable" items.

I will briefly discuss each of these areas and our tentative recommendations.

As to benefits without completion, as of January 1977, TVA had obligated about \$103 million on the project and estimated that about \$13 to \$19 million was required for completion. The funds for completion are primarily for roads, recreation centers, and reservoir clearing.

The actual dam portion of the project has been completed. Closing the sluice gates and impounding the reservoir, however, depends on the outcome of TVA's appeal of the court's decision to the U.S. Supreme Court and action by the Congress on exemption legislation.

There are varying estimates of the amount of funds spent to date which might provide benefits if the project were not completed. The Tennessee Endangered Species Committee, for example, has asserted that \$80 million of the \$103 million obligated could still provide benefits. TVA estimates that only \$25.65 million is recoverable.

I should point out that these estimates do not address exactly the same point, however, since TVA's valuation is limited to an estimate

of the current value of the land, plus the estimated cost of roads and bridges which were needed even without the project.

Our analysis looks at what portions of the project might provide at least some benefits even if the project were not completed. We believe that \$56 million, or about half of the project costs—primarily for land, roads, and bridges—could provide some benefits under this criterion, but the amount of benefits to be derived will depend on how the land is used. Because bridges were built higher and longer than normal to accommodate a reservoir and many of the roads were built to replace existing roads scheduled for inundation, the benefits probably will not be proportionate with the cost.

Another type of benefit associated with the Tellico project is the economic stimulation from almost \$25 million in salaries and wages paid to the project workers. Some argue that a portion of these payments should be included in the calculation. However, since the direct benefits created by these wages have already been realized, and any secondary stimulation that might accrue will also be realized without regard to whether the project is completed, we have not included these payments as "benefits."

Turning to project alternatives, project proponents and opponents agree that a workable compromise between completing the Tellico project and the continued existence of the snail darter in the Little Tennessee River is not possible. A low or an intermediate dam would threaten the survival of the snail darter and, at the same time, reduce projected benefits for the reservoir.

Abandoning the project without removing at least a portion of the dam is also not feasible because life cycle studies of the snail darter indicate that the dam in its present form also threatens the darters' survival in the river.

TVA has transplanted about 700 darters to the Hiwassee River. Although still questioned by some biologists, TVA claims its transplant is successful based on survival, maturity, and reproduction. For that reason, and because the existing Tellico construction is threatening the darter, TVA has twice petitioned the Secretary of the Interior to delist the Little Tennessee River as its critical habitat. The Secretary of the Interior rejected the first petition and suggested certain steps to preserve the darter population. TVA has not received a response to the second petition.

In addition to studying modifications to the dam and transplanting the snail darter, TVA has considered alternate uses for the valley if the project is not completed. Other groups such as the Tennessee Endangered Species Committee and students and faculty at the University of Tennessee have also developed alternate use plans. Each of the other groups' plans proposes to preserve the existing river and to develop the agricultural lands, cold-water recreational opportunities and numerous archeological and historical sites. Although some of the plans are quite detailed, none are supported by current cost-benefit estimates which evaluate their feasibility.

Because the dam in its present form threatens the snail darter's survival, any evaluation of alternative plans must include the costs of removing at least a portion of the dam, which is partly concrete and partly earthen. We believe that removal costs could vary considerably depending on the extent of restoration deemed necessary.

Removing a portion of the earthen dam, as suggested by the Tennessee Endangered Species Committee, to allow the river to flow more freely could likely be accomplished without great expense. However, TVA maintains that removing only a portion of the dam will result in periodic flooding of some of the prime agricultural land in the valley. TVA estimates that removing the concrete and earthen dams and restoring the entire area could cost as much as \$16 million.

As to benefits with completion, the Tellico Reservoir would principally provide recreation, shoreline development, and flood control benefits. Other benefits, such as navigation and electric power generation, are also expected. The most recent analysis of these benefits was prepared primarily in 1968 by TVA. TVA estimated direct annual benefits of about \$3.8 million annually from the project and a benefit-cost ratio of 1.7 to 1. Although project costs have increased about 115 percent, TVA has not updated its cost-benefit analysis.

We examined the assumptions and logic used by TVA to estimate benefits for Tellico. Generally, we conclude that TVA's projections are not representative of the actual benefits that could be derived. In some instances, we found that the methodologies used did not conform to Federal guidelines and, in other instances, statistical projections were not valid.

For example, TVA's projection of recreation benefits, which accounts for about 38 percent of all benefits, had several questionable assumptions and did not adequately consider factors such as water quality, type and amount of shoreline development, the amount of land devoted to public access, and proximity to population centers.

TVA based its estimate on an average annual visitation rate per shoreline mile at all existing reservoirs and adjacent parks in the TVA system. Our analysis showed that this average does not reflect the extreme variations, or the reasons for the variations among the individual reservoirs used in the analysis. The visits per shoreline mile used to compute the average ranged from 258 at one reservoir to 19,351 at another.

Also, TVA did not make allowances for recreation visits at Tellico that would result in a reduction in visits at nearby existing reservoirs. TVA officials agreed that different factors would be used if the analysis were to be made again.

Because of problems with this and other benefits, we were unable to determine whether the benefits claimed for the Tellico project were overstated or understated. Clearly, we believe that more current remaining benefit and cost information is needed on the project and its alternatives before an informed decision can be made.

I turn to my recommendations. As I stated at the beginning, we plan to issue a report to the Congress in the near future on our assessment of the Tellico project including a detailed analysis on each of the major points which I have discussed here today, and comments of TVA and other affected agencies.

We expect to make several recommendations to the Congress and to the Chairman of the Board of TVA concerning the need for more current information on the project. Since the report is not yet final, the recommendations I am about to make must be regarded as tentative.

We plan to recommend that the Chairman of the Board of TVA gather and provide to the Congress, through the Office of Management

and Budget, detailed remaining cost and remaining benefit information on the Tellico project and its alternatives.

In addition, we plan to recommend that the information include the formal comments of the Office of Management and Budget, the Council on Environmental Quality, and the Department of the Interior, and be submitted to the Congress not later than 6 months from the date of our report.

TVA is ready to impound the reservoir and spend an estimated \$13 to \$19 million to complete the project if the U.S. Supreme Court rules in favor of its appeal and lifts the current injunction. For this reason and because current detailed benefit information is not available, we expect to recommend that until the remaining cost and remaining benefit information on the Tellico project is received from the Chairman of the Board of TVA, including the comments of agencies referred to above, the Congress prohibit by law the expenditure of existing appropriations, and not authorize further appropriations for work on the project that would, one, further endanger the snail darter's survival, such as closing the sluice gates, or, two, not be necessary if the project is not completed or is modified.

Finally, we also expect to recommend that no action be taken on legislation which would exempt the Tellico project from the Endangered Species Act of 1973 until the Congress has had time to receive and assess the updated information outlined above.

In closing, I must emphasize that these recommendations should not be construed that GAO is either for or against the completion of the Tellico project, but rather that we believe additional information is necessary to allow the Congress to act on the questions before it.

Thank you, Mr. Chairman.

[Attachments to Mr. Canfield's statement follow:]

ATTACHMENT I

ATTACHMENT I

Tellico Dam Project Costs
As Of February 1977

<u>Type of expense</u>		<u>Cost</u> <u>(in millions)</u>
Land acquisition		
Purchase price		
Land	\$16.9	
Improvements	<u>5.2</u>	
		\$22.1
Other related costs		
Acquisition expense	\$ 1.9	
Surveying and mapping	0.8	
Legal	0.2	
Relocation	<u>0.5</u>	
		<u>3.4</u>
Total land acquisition		\$ 25.5
Construction		
Dams		
Concrete dam spillway	\$ 5.0	
Main earth dam	16.2	
Auxiliary dams	<u>1.3</u>	
		\$22.5
Reservoir roads, bridges and other adjustments		
Highways and bridges	\$25.6	
Railroad and bridge	4.1	
Reservoir clearing and rim treatment	4.0	
Utility relocations and miscellaneous	<u>2.0</u>	
		35.7
Other construction features		
Access roads	\$ 2.1	
Interreservoir canal	1.8	
Public use facilities	0.1	
General yard improvements and miscellaneous	<u>0.8</u>	
		<u>4.8</u>
Total construction		63.0

ATTACHMENT I

ATTACHMENT I

Tellico Dam Project Costs
As of February 1977
 (Continued)

<u>Type of expense</u>	<u>Cost</u> <u>(in millions)</u>
Other	
General engineering and design	\$ 1.6
Planning, surveying, model tests	3.2
Environmental studies, construction supervision and support, and nonallocated overheads	8.2
Contracts not yet paid in full	<u>1.7</u>
Total other	<u>\$ 14.7</u>
Total costs	<u>\$103.2</u>

ATTACHMENT II

ATTACHMENT II

Estimates Of The Amount Of Tellico
Dam Project Costs That Are
Recoverable Or Could Provide Benefit
Without Project Completion

<u>Category</u>	<u>Original cost</u>	<u>TVA estimate of recover- able cost</u>	<u>Estimate of amounts that could provide benefit</u>	
			<u>GAO</u>	<u>TESC</u>
Land	\$ 25.5	\$21.0	\$25.5	\$25.5
Construction				
Dams	22.5	0.0	0.0	0.0
Roads, bridges, and other reservoir facilities	35.7	3.3	26.5	34.0
Other facilities	4.8	0.0	0.0	0.0
Other costs	<u>14.7</u>	<u>1.35</u>	<u>4.3</u>	<u>5.5</u>
Total	<u>\$103.2</u>	<u>\$25.65</u>	<u>\$56.3</u>	<u>\$65.0</u> <u>1/</u>

1/ In addition to the \$65 million, the Tennessee Endangered Species Committee (TESC) also contends that \$15 million in salaries will provide benefits.

ATTACHMENT III

ATTACHMENT III

<u>Alternatives Evaluated By TVA</u>			
<u>Project design</u>	<u>Characteristics</u>	<u>Estimated annual costs</u>	<u>Estimated annual benefits</u>
Lower dam	3200 acre pool extending 25 miles	\$1,426,000	\$3,560,000
Lower dam and scenic stream	3200 acre pool; 8 mile scenic stream	1,444,000	3,602,000
Intermediate dam	8000 acre pool extending 29 miles	1,745,000	3,500,000
Intermediate dam and scenic stream	8000 acre pool; 4 mile scenic stream	1,761,000	3,509,000
Scenic stream	33 mile scenic river corridor	82,000 1/	129,000 2
No further action	Project abandonment	-0- 1/	101,000 1.7
Tellico Project	Full pool level with Ft. Loudon reservoir	1,507,000	5,903,000
			100

1/ Excludes cost of removing a portion of the Tellico dam.

ATTACHMENT IV

ATTACHMENT IV

Land-Use Alternatives Proposed
By Other Groups

<u>Proposal number</u>	<u>Major elements</u>	<u>Estimated Costs</u> <u>1/</u>
(1)	Declare the Little Tennessee River a Class II pastoral river. Acquire easements: 2891 acres scenic and 764 acres public use. Acquire islands: 730 acres. Provide 3 access sites.	\$ 20,000
(2)	All aspects of plan (1) plus 2 added access sites. Develop 14 archeological and historic sites. Construct a visitor center at Halfway Town.	1,998,500
(3)	All aspects of plans (1) and (2) plus 11,000 acre state park, stable facilities at several historic sites, 15 cabins, 50 trailer campground with facilities and a group lodge for 60 persons.	5,450,800
(4)	Return all land to private ownership.	Negligible
(5)	All aspects of plan (2) and return adjacent lands to private ownership and agricultural development. Provide 5 access sites. Develop 14 archeological-historical sites.	1,998,500
(6)	Designation of Class II river, develop archeological and historical sites, establish a state park and return agricultural lands to private or semi-private control.	5,450,800
(7)	All aspects of plan (1) plus return all land to private ownership. Provide scenic and public use easements and 3 access sites.	20,000
(8)	Return all land to private or semi-private ownership with minimal control by a managing authority. Use area as a model agricultural management region in combination with a recreational facility. Construct a loop system to maximize tourism.	No estimate

1/ GAO did not verify the cost estimates or determine associated project benefits. Estimates exclude the cost of removing a portion of the Tellico dam.

ATTACHMENT V

TVA's Estimate Of
Removing Dams And
Restoring Project Area

ATTACHMENT V

	<u>Estimated cost</u>
Remove concrete dam and spillway	\$ 3,800,000
Remove earth fill dam	5,300,000
Remove auxiliary dams	700,000
Fill interreservoir canal	3,300,000
Reforest river banks and reservoir	500,000
Obliterate incompletd roads and site facilities	1,100,000
Restore fill at Old Fort Loudoun, Chota, and Blockhouse	700,000
Remove 411 and railroad bridges	200,000
Remove miscellaneous facilities	<u>400,000</u>
Total Estimated Cost	<u>\$16,000,000</u>

ATTACHMENT VI

ATTACHMENT VI

TVA'S Estimate Of The
Direct Annual Benefits Of
The Tellico Dam Project

Recreation	\$1,440,000
Shoreline development	710,000
Flood control	505,000
Navigation	400,000
Power	400,000
Fish and wildlife	220,000
Water supply	70,000
Redevelopment	<u>15,000</u>
	<u>\$3,760,000</u>

Senator CULVER. Thank you very much, Mr. Canfield.

I understand you have another commitment that might require you to leave; is that correct?

Mr. CANFIELD. I can stay the better part of the morning, if necessary.

Senator CULVER. In your statement, you noted that the remaining costs of the Tellico project will be primarily for the development of roads, recreation centers, and reservoirs. Is it common practice for TVA and other project agencies to finish the dam portion before finishing other aspects of this type of project?

Mr. CANFIELD. Yes; it is. It is fairly normal. It is common practice.

Senator CULVER. You have stated that costs associated with removing a portion of the dam could vary considerably depending, of course, on the extent of the recreation requirements deemed necessary. Are you prepared to give us an estimation of the outside limits of these costs and discuss perhaps the restrictions that would be associated with each limit?

Mr. CANFIELD. Yes, sir. From your statement and attachment 5, you can get some indication of these limits. If, as some have argued, you remove a portion of the earthen dam to solve the spawning problem of the snail darter, the cost could be less than \$5.3 million—the estimated cost of removing the earthen dam.

If you were to remove both the concrete and earthen dam, restore and fill the area, et cetera, TVA estimates the cost to be \$16 million—about the same as the cost to complete the project.

If you fellows want to expand on that, feel free.

Mr. HOWARD. It is self-explanatory.

Senator CULVER. TVA believes that removing only a portion of the dam will result in periodic flooding of prime agricultural land in the valley. Do you agree?

Mr. HOWARD. We don't know what impact removing a portion of the dam would have. We do know that when the valley had a flash flood 3 or 4 months ago with the entire dam in place and the sluice gates open, it temporarily flooded a lot of the area.

Senator CULVER. Can you talk into the mike?

Mr. HOWARD. The valley had a flash flood and it did temporarily cover quite a few acres, but that was with the entire dam in place and the sluice gates open.

Senator CULVER. Are you aware of other views on this matter?

Mr. HOWARD. No.

Senator CULVER. There is no disagreement?

Mr. HOWARD. We have not specifically talked with other people on this. This is something that has come up fairly recently.

Senator CULVER. Do you plan to talk to someone else on this matter before you submit your final report to Congress?

Mr. HOWARD. Yes.

Senator CULVER. You have stated that the methodologies that were used by TVA in arriving at the cost-benefit analysis for the project do not conform to Federal guidelines. Of which guidelines are you speaking?

Mr. HOWARD. Specifically, Senate Document 97. There were a couple of instances—

Senator CULVER. You are really going to have to put that mike in front of you.

Mr. HOWARD. We noted a couple of instances where Senate Document 97 criteria was not specifically followed. For example, Senate Document 97 provides that benefits basically are the net increase in value with a project compared to the value without the project. And this was not always done, for example.

Senator CULVER. Does that describe other reasons why the TVA methodology does not conform to the guidelines?

Mr. HOWARD. Yes; there are several reasons. Basically, our biggest problems with the analysis that was made at that time relate to the methodology and procedures, not the failure to follow guidelines. I think failure to follow guidelines is a rather minor consideration.

Senator CULVER. Why don't their methodologies conform?

Mr. HOWARD. We are not saying that their methodologies do not conform in all cases. We did notice a couple of instances, however, where TVA did not compare values with and without the project.

Senator CULVER. Would you elaborate on that point for the record.

Mr. HOWARD. For example, to estimate flood control benefits, TVA calculated an average savings per acre-foot of storage for the whole TVA system, and multiplied this average by the acre-feet of storage in the projected Tellico Reservoir. In our thinking, the proper way to estimate these benefits is to determine how much flood damage would occur without the project and compare it to how much damage would occur with the Tellico project. To us, this would be a more reasonable approach.

Senator CULVER. Could you give us for the record any other examples, in your judgment, where TVA methodologies do not conform? Would you do that?

Mr. HOWARD. Yes; these examples will be included in our final report which we plan to issue shortly.

Senator CULVER. You also noted statistical projections used by TVA were not valid, did you not?

Mr. HOWARD. Yes.

Senator CULVER. What were you speaking of, and why were they not valid?

Mr. HOWARD. For example, to estimate navigation benefits, TVA identified 44 industrial firms that were already located on the Tennessee River and calculated the navigation savings those firms had incurred over the previous year. I think it was. TVA totaled all the savings, divided by the acreage occupied by the firms, and came up with an average savings per acre.

This average savings was then multiplied by the 5,000 industrial acres that TVA plans to have in the lower Tennessee, to project navigation savings.

We noticed of the 44 industries used to project savings, 27 had no savings at all. It seems questionable to us that TVA could average in 27 out of 44 with no savings and still come up with something that might be reasonable. To us, navigation savings would depend more on what kind of industries would locate at Tellico and how much savings these industries would have.

Senator CULVER. You also criticized TVA's projections for the recreational benefits associated with the project. What benefits did you examine and what were your conclusions?

Mr. HOWARD. There are basically eight benefit areas.

Mr. CANFIELD. Mr. Chairman, you might want to turn to the last page of the attachments. It lists the eight areas.

Senator CULVER. Read those for the record. Would you read that chart.

Mr. HOWARD. The chart shows TVA's estimate of the direct annual benefits.

Senator CULVER. Please talk into the microphone.

Mr. HOWARD. The chart shows TVA's estimate of the eight direct annual benefits of the Tellico project. Recreation, \$1,440,000; shoreline development, \$710,000; flood control, \$505,000; navigation, \$400,000; power, \$400,000; fish and wildlife, \$220,000; water supply, \$70,000; redevelopment, \$15,000, for a total of \$3,760,000.

Senator CULVER. Mr. Canfield, on page 5 of your statement you note that none of the alternatives proposed to the Tellico project, I quote, " * * * are supported by current benefit-cost estimates which evaluate their feasibility."

Does this mean that none of the alternatives are cost-beneficial, or cost-benefit analyses have not been prepared on the alternatives?

Mr. CANFIELD. The latter.

Senator CULVER. Senator Wallop?

Senator WALLOP. Mr. Canfield, you described the cost-benefit methodology used by TVA as problematic. I think this whole subject of cost-benefits is problematic, because it is a manipulatable figure.

In your opinion, was the Tellico project more problematic than other projects?

Mr. CANFIELD. That would be very difficult to say. We did find that it didn't conform with some of the guidelines. It would be difficult for me to state that it was more or less problematic. That would be pure speculation on my part.

I have looked at cost-benefit ratios over the years, and I know exactly what you are talking about in terms of how ratios go up and down, but I couldn't tell you if it was more or less problematic than the others.

Senator WALLOP. You state they didn't update it. Is it a common practice to update cost-benefit ratio studies?

Mr. CANFIELD. It seems we would never get anything built if we did that. It is not a common practice, but not a completely unused practice either, especially for projects that have been authorized and benefit-cost ratios prepared many years ago.

The reason we are suggesting it here is because this is a rather unique situation. There is a lot of emotion involved in Tellico and a lot of other social values that have come to the fore. We want TVA to not only update the strict economic cost-benefit analysis, but to also get the views and opinions on that updated analysis from other agencies which represent different points of view.

Senator WALLOP. Did TVA use the existing Federal guidelines when they prepared their cost-benefit analysis? They had two different sets of guidelines.

Mr. HOWARD. Our analysis was made on the basis of the guidelines existing at that time. TVA generally did follow those guidelines.

Mr. CANFIELD. And we noted the instances where they did not.

Senator WALLOP. But you say they generally did follow the guidelines at that time but have not updated it. Isn't that a kind of an unfair approach?

Mr. HOWARD. I think the discussions this morning are probably giving too much attention to whether or not the guidelines were followed. Most of our problems with TVA's cost-benefit analysis are not specifically with the guidelines themselves or whether or not they were followed, but rather with the methodology and procedures that were used.

Senator WALLOP. OK, we will look at that. They contain several questionable assumptions and TVA did not make allowances for recreation visits to Tellico that would result in reduction to visits to nearby reservoirs. My experience is if you create recreation areas, they will get full. Most of them in the country are overcrowded.

Mr. HOWARD. I don't have the exact figures, but I do believe some of the other reservoirs in the area are not at capacity at this time.

Senator WALLOP. That is a very unique State.

Mr. HOWARD. There are about 20 reservoirs within 100 miles or so of the Tellico project.

Mr. CANFIELD. We did note in the testimony, Senator, that visitation rates at TVA reservoirs vary from some 200 visitors to over 19,000 per shoreline mile. We are only questioning the fact that TVA would take the average of these widely varying rates and assume that the average number of visitors will use Tellico. It is not a very sophisticated way of looking at it, because it doesn't consider the number of potential visitors in the area surrounding Tellico or the number of visitors that might be attracted from the reservoirs.

I think it is important that our analysis did not lead us to conclude that the benefits were either overstated or understated.

Senator WALLOP. That is what I was about to get into. You just said it wasn't a very sophisticated approach. I think perhaps that it is more sophisticated than that. To criticize something and say you have not been able to determine whether they were right or not—

Mr. CANFIELD. We found a number of problems. We would like to have TVA look at the remaining costs and benefits, come up with an analysis and share that analysis with other agencies—including the Department of the Interior, the Council on Environmental Quality and the Office of Management and Budget—that represent other points of view so the Congress will have before it all of the relevant considerations that can bear on the problem. We have also asked those agencies to comment on our report and give us their assessment of what they think of it.

Senator WALLOP. I must say, that doesn't come across clearly. In your statement, you say that \$56 million, about half the project cost, could provide some benefits. Does this mean that \$47 million of the project cost will be lost?

Mr. CANFIELD. The way we analyzed it under our criterion, that is correct. We believe that some benefits can accrue to the project but probably not proportionately with the cost. We tried to be conservative in our estimate.

Other people have come up with figures much higher. Attachment 2 of my statement indicates that the Tennessee Endangered Species Committee asserts \$65 million will provide benefits and added in \$15 million worth of salaries. We took a more conservative approach than that.

The other way to look at it is to determine the cost which could be literally recovered if the project were abandoned at this time. TVA arrived at the much, much smaller figure of \$25.7 million because they limited their estimate to the current value of the land plus some credit for bridges which were in poor shape and would have had to be replaced anyway had the Tellico project not been developed.

Senator WALLOP. Did any of the alternatives look as though they would reduce the \$47 million figure?

Mr. CANFIELD. Senator, there are no cost-benefit analyses available on those alternatives, so we were unable to do an economic calculation as to how those alternatives would look.

Senator WALLOP. Off the top of your head, does the \$16 million that it would cost to build the dam get added to the \$47 million?

Mr. CANFIELD. To the \$47 million? Yes, some of it would, but some of the remaining costs—such as completing roads—could provide benefits.

Senator WALLOP. So we are looking at \$63 million.

Mr. CANFIELD. Yes, as an absolute maximum. That is right.

Senator WALLOP. Thank you, Mr. Chairman.

Senator CULVER. Mr. Canfield, I am really getting somewhat disappointed. I think, with some of GAO's products. Congress asked you to look at this project in late February, wasn't it?

Mr. CANFIELD. March.

Senator CULVER. As a member of the Public Works Committee, I was involved in the consideration of Lock and Dam 26 last year, and I remember that this committee asked GAO to study alternative proposals of reconstruction of that dam and to recommend to Congress what would be the most favorable public investment in that regard.

GAO used outside consultants for that study, and I don't think GAO ever came back with a sound recommendation. And here is another example. Why shouldn't GAO determine the appropriate cost-benefits rather than recommending another study? We study so much around here I don't think the patient can survive another examination.

We just grind out all that paper and pay for all those people and we don't have the guts at the end to decide what to do. Why doesn't GAO make its own cost-benefit estimate for this project?

Mr. CANFIELD. The simple fact of the matter has been that it has not been the business of the General Accounting Office to do cost-benefit analyses, per se.

Senator CULVER. What do you mean GAO shouldn't do this work, if that is a prerequisite for a recommendation to the Congress? You consult out all the time. What do you mean, "do not touch, cost benefit work; beware, GAO, poisonous if consumed internally"? What do you mean GAO does not do cost-benefit work? What kind of nonsense is that?

Mr. CANFIELD. I am not at all sure I would have walked in here if we didn't do work that is politically sensitive.

Senator CULVER. When you walked in here you indicated the need for another study. You are in the middle of the fairway. I would like to see some evidence of a tough look at this problem.

Mr. CANFIELD. We do analyses of the work of the executive branch. Sometimes it is very frustrating. We will be presenting next week an analysis of the President's energy plan, and one of the criticisms will be that we didn't come up with a national energy plan, but that has not been, for over 50 years, the role of the General Accounting Office.

Senator CULVER. Why not short-circuit you? Why don't we just bypass you, and get someone else to do the first study? It might knock out a link in the chain.

Mr. CANFIELD. That may be a possibility.

Senator CULVER. It may be a possibility we will consider, and may be a corresponding change in your budget.

Mr. CANFIELD. Another committee asked us to take a look at TVA's cost-benefit analysis and find out where the strengths and weaknesses were. This is precisely what we tried to do. We tried to answer the questions of another committee. We did exactly that. They didn't ask us to do a cost-benefit analysis.

Senator CULVER. Don't you almost have to do that in part to determine the effectiveness of TVA's assessment? How do you punch holes in what they said without an independent evaluation on your own?

Mr. CANFIELD. We looked at what they did—

Senator CULVER. GAO said TVA did not do it properly, and that they came up with such a result. Why didn't GAO go ahead and make the correct analysis?

Mr. CANFIELD. We said have them go back and look at the remaining costs.

Senator CULVER. Why have TVA gone back? You know the requirements. If TVA's study is defective, and GAO gets paid to do the work in the public interest, just make a few more phone calls and get the necessary data that TVA had used and point up specifically, not philosophically, that the cost benefit analysis would result in such a finding if the right data are used.

Finish the job. Don't come in with a recommendation for another study.

Mr. CANFIELD. It is the responsibility of the Tennessee Valley Authority. Certainly if you want you can accept the analysis that was done in 1968 as accurate and updated and a useful document now for making these decisions. All we are recommending is that they come through with a remaining cost-benefit analysis and that it be shared with other agencies representing other points of view in the spectrum of all the issues that Congress has before it.

There are other views on this project. Tellico is not just an average project; there is a lot of emotion and heat involved in it.

Senator CULVER. I have never suffered under the illusion that Tellico is an average project or I would be somewhere else this morning.

Mr. CANFIELD. All we are saying is that we think an updated analysis with the views of these other agencies should be submitted through

the OMB because we think the President has an interest in it. Then the Congress will have before it an updated assessment of all of the views, taking into account environmental and economic issues.

Congress doesn't have to, of course, accept our recommendation.

Senator CULVER. The staff has just provided me here, Mr. Canfield, the request to your agency to make this study for the Congress, dated March 29, 1977. And on the last page of that request, item No. 3 specifically requests the GAO—

to analyze the current Tellico cost-benefit analysis, its assumptions and data base and ascertain for Congress reviews of alternatives of the actual public benefits and losses that would be produced by a decision to complete the expenditures taken and flood the reservoir's portion of the valley.

Now, has that been done? Has that been done?

Mr. CAHALEN. Sir, after we received the letter, we notified the subcommittee chairman and his staff. And based on our discussion with him—and we pointed out a cost-benefit study of the type he wanted would take 9 months to 1 year—he requested we not do the cost-benefit analysis, but rather get specific answers for him.

Senator CULVER. So your orders were modified?

Mr. CAHALEN. Yes, sir.

Mr. CANFIELD. We didn't want to take the time.

Senator CULVER. When will your final report be ready?

Mr. CANFIELD. I would hope to have it in a matter of 2 or 3 weeks. We are awaiting written comments from TVA and Interior and expect to receive oral comments from OMB and CEQ.

As soon as we receive these comments we can make modifications and changes and issue the report.

Senator CULVER. I want to thank you very much for your presence here today. We look forward to your final report.

Mr. CANFIELD. Thank you, Senator.

Senator CULVER. The next witness is Mr. Donald Hanson, the project administrator for the Tellico alternatives study. He has been requested by the House Subcommittee on Fish and Wildlife, Conservation and Environment, to do the study.

STATEMENT OF DONALD HANSON, PROJECT ADMINISTRATOR, TELLICO ALTERNATIVES STUDY, KNOXVILLE, TENN.

Mr. HANSON. If the staff would assist us in dimming the light, please.

Senator CULVER. Before we do that, I would like to point out that this study was initiated at the request of Representative Robert Leggett, the chairman of the Subcommittee on Fisheries and Wildlife Conservation and Environment, U.S. House of Representatives, on May 6, 1977.

And I would like at this time, without objection, to introduce the letter from Congressman Leggett to Donald Hanson requesting this study and make it a part of the record at this point.

[The letter follows:]

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, D.C., May 6, 1977.

Dean Donald Hanson
School of Architecture
Estabrook Hall
University of Tennessee
Knoxville, Tennessee 37916

Dear Dean Hanson:

As you undoubtedly know, the Sixth Circuit's recent permanent injunction against closure of the TVA Tellico Dam has directed a good deal of public attention to the Endangered Species Act of 1973, in general, and that project in particular.

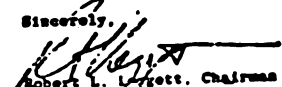
Congressmen Murphy, Forsythe, and I have requested the General Accounting Office (GAO) to conduct a thorough investigation of the issues involved in the Tellico controversy. It is likely that the Committee will be holding hearings on this issue after it receives the GAO study this summer.

One of the basic inquiries in the GAO review will be the potential for public use of the 35,000 acres of Federal project lands in the Little Tennessee River Valley in the event that the dam is not completed. A variety of complementary project modification proposals have been suggested, but apparently no study has ever collected and presented these alternatives.

I understand that you and your faculty have a great deal of expertise and information concerning development alternatives for the Little Tennessee River Valley. I would appreciate it if you could compile a data base for considering the agricultural, industrial, historical, recreational and touristic development potential of the Valley. The latter would not be a plan, but rather a presentation of conceptual alternatives for the Valley. I would appreciate it if your work would be technical and informational rather than expressing a position for or against Tellico Dam.

I appreciate your assistance in this regard. Inquiries about this request should be directed to my Subcommittee Counsel, Mr. Robert Thornton, at 202-225-7307.

Sincerely,


Robert L. Garrett, Chairman
Subcommittee on Fisheries

Senator CULVER. It is a pleasure to welcome you here.

Mr. HANSON. Thank you, Senator.

We would like to assert the purpose of this study was to collect and present a variety of potential modifications to the TVA proposal, some of which have been previously suggested to the subcommittee, but never before evaluated or presented. Time and funding constraints prohibited the exhaustive analysis for development of these alternatives or variations.

However, we believe the study will have value to the deliberations and have been structured to most objectively present potential options. We wish to assert this is neither a pro or con report.

The name of the study is "Alternate Futures for the Little Tennessee River Valley." The regional location, as mentioned before, is an area that is a central location southeast at the tip of the—

Senator CULVER. Would you go up there and use a pointer to tell us?

Mr. HANSON. Can you see that?

Senator CULVER. I guess so.

Mr. HANSEN. OK.

Senator CULVER. Have you got a friend who knows what you are talking about and can point it out on the map?

We have so many gadgets we can't get the job done.

Mr. HANSON. I am sorry.

The heavy dot is the location of the site at the end of the chain of the Great Smoky Mountains adjacent to a great number of Federal lands. Within 1 day's drive, there are approximately 80 million people. Within close vicinity you will find the waterway system has been heavily impounded and treated over the years by TVA and has resulted in major benefits to the region.

There are three types of waterways: The free-flowing waterway, and there are the tailwaters, if you would, that have resulted from the impoundments, and canned or piped waterway systems.

The Little Tennessee River is part of the greater Tennessee River system. The red or darker area represents the watershed of the Little Tennessee River. The darkest red is, in fact, the project area. It is at the confluence of the Tennessee River with the Little Tennessee River. In that watershed there are at this moment eight dams.

The white area designates the area of the project which is approximately 38,000 acres. The red dot is the site of the Tellico Dam which has been constructed, and in total lies in a corridor that was referred to in our study as the Cherokee Corridor because that is the central area of settlement of the Cherokee Nation.

Above that is the large Smoky Mountains National Park, and the Cherokee National Forest below. Specific improvements that have been made are the roadway systems. The green are the most recent. On the perimeter of the site this new construction does, in fact, make a major improvement in the area.

This is the traditional road system in the area. The project area, then, is approximately 33 miles long.

There is one major tributary on the bottom of the sheet which is the Tellico River tributary. At the top of the sheet, or the north end of the sheet, is the site of the dam. The dam has not been closed. It is adjacent to the Port Loudon Dam across the river from Lenoir City and upstream from the second site.

That couplet of the two cities presents itself as a potential urban growth center. The site is traversed by a highway, which is 411, which is the beginning of a major urban corridor. You will find that is also the site proposed for industrial development.

This is the agricultural and forested areas on the south end. It has been stripped and clear cut.

To give you an idea of the site, this is a view from the blockhouse, the Tellico blockhouse site looking upriver.

This series of four slides was taken this past year. The first is before the clear cutting was done.

The next slide shows what happened when the area was clear cut.

The third slide shows some of the flooding that was alluded to earlier as a result of the dam.

And most importantly, this fourth slide which was taken this last week, shows you the natural recovery potential of that region. The

dam itself is over a half a mile long. Most of it is an earth dam. There is concrete on one end, at which are the control gates. They are kept open by cable.

Above that area the land is heavily scalped. If you go across the top of the slide, there is a spillway which will become the channel for the connection between Lake Loudon and the Tellico project if it is impounded.

Today an earthen dam separates that division. There is approximately 70 feet of elevation change between the level of the lake and what is now the basin level in the Little Tennessee River.

I would like to point out to you that flooding is characteristic to the area of the impoundment. But this new flooding has created yet another situation, that of erosion.

We simply bring this diagram before you to suggest there are many aspects of the current status of the site which should be considered.

To the north, or upstream, it is mountainous country.

This is the Little Tennessee River which is heavily populated by fishermen.

As it flows north, it becomes flat agricultural plains.

On some of these flats you will find the sites of the former settlement of the Cherokee Nation. The terrain has quite a beautiful landfall. Unfortunately, part of it is rapidly eroding.

The Tellico River: We have taken shots to show you some of these erosion conditions. You can see the washouts and the mud from the Tellico River entering the Little Tennessee.

Senator WALLOP. Is that now?

Mr. HANSON. That is now.

Senator WALLOP. Why?

Mr. HANSON. Because of clearcutting and the water is no longer retained by the vegetation. And in some instances with the removal of topsoil it is washing very badly right now.

If you look down the river you can trace the erosion in the Little Tennessee almost all the way to the flats, which is the natural habitat of the snail darter.

This report addresses three as opposed to one generic strategies. There is obviously the strategy of the empoundment of the river system and the strategy that the basin not be flooded. What we have tried to do is present three generic strategies and match them to a common set of land uses that could be assigned to the area. Some have been discussed before and some we are proposing for the first time.

The Tellico basin, if it is retained, of course, does have certain advantages which we were impressed with. This options feasibility was reinforced by the observation of the natural recovery powers of the land itself.

The second generic approach is, of course, the impoundment. This is effectively the proposal by the TVA. You can see a large lake. That lake form is a very common phenomenon to this region, as I mentioned before.

There are better than 60 dams in TVA sector, and 8 of which are in this particular watershed.

A third generic option we considered requires the retention of the Little Tennessee basin, but the impoundment of several tributaries.

As an example, the Tellico basin, for reasons of erosion, is such that if just left to continue erosion it will continue to carry that erosion into the Little Tennessee River.

The other two impoundments are simple impoundments which would provide a focus for housing and recreation development in that vicinity.

The Tellico basin, as I mentioned before, has been stripped. Here as an illustration is a hole over 5 feet wide where the subsoil water is moving rapidly creating a washout.

It is a broad basin, as I said before, 7 or 8 miles in length. And if it were flooded, you begin to approximate another lake in the vicinity, the Santecla Lake on the North Carolina side of the watershed.

The agricultural tradition of this land is remarkable. Being a farm boy from Minnesota, I was impressed by the fact that class 3 farmland produces farm crops of over 150 bushels of corn per acre. As you can see, rich farmland on these flats are common.

This illustration is along the river itself. This is the map of classes 1, 2, and 3 land. With the impoundment, as you can see, there is a dramatic loss in the land available for agricultural purposes. I believe TVA estimates indicate 8,000 acres remaining for agricultural purposes.

The upper end of the map, the north end, is essentially the habitat—the red area—of the snail darter. The critical spots are, of course, right at the site of the dam and just upstream, oh, 7 or 8 miles is point 4 where the shoals exist. It (the snail darter) does have its presence all through the first 17 miles.

On the south end, or the lower right-hand corner of the drawing, this is a very productive fishing area. It is heavily populated with fishermen. If impounded, the snail darter habitat is lost and the trout fishing greatly reduced.

The historical significance of this area goes back to prehistoric times. You will have more testimony on that, but specifically we would like to call to your attention that the archeological sites themselves present a major resource to the area. A rather unique resource. They have an excavation going back 9,500 years to 7500 BC.

Of course, the conflict between the white settlers and the later settlement of the Cherokees is famous. This was the capital of the Cherokee Nation. The Cherokee period was about 200 years. TVA has been there about 40 years, or somewhat less than that.

These are logs of the reconstruction of Fort Loudon, which was relocated so it would not be flooded, whereas the other archeological site would be lost. The historical sites and archeological sites are blue and red. The red are archeological sites. There are better than 30 on that map. With the option No. 2 of impoundment, they virtually disappear.

The industrial proposal by TVA, the dark purple, represents over 5,000 acres, or more than 8 square miles, that they propose as industrial at the junction of 411. The lighter purple areas are the areas that the adjacent counties have indicated for industrial zoning.

There is the beginning of industrialization up along the river. One of our observations was this: That the amount of area in this particular region being set aside for industries far exceeds even the most

optimistic estimates of what the region needs for industrial sites. Even if taking away the industrial site from the project area and relocated that closer to the mouth of the Tennessee and the Little Tennessee River, you still have an enormous amount of acreage, better than 18,000 acres, tentatively set aside for industrial purposes.

We have made this conclusion: I think we do have strong feelings that the industrial location might be better placed toward the confluence of the two rivers and which would negate having to build barge facilities up the river which would not only create conflict to recreation, but produces pollutants to the Little Tennessee lower basin.

The improvements such as this have been built in an area where the archeological ruins are most prevalent. This happens to be a plan of one of the houses that will be reconstructed with the impoundment. However, the rest of these lands will be lost.

The one thing we must mention to you is that the condition of high and low water essentially creates a condition of flushing these sites. So even though impounded, there are times when they would be revealed. The high and low water marks would wash away remnants of the site.

This is the river today and those are the sites in the southern and lower basin, and here are the remaining sites with impoundment.

There are two important archeological sites—

Senator CULVER. I am afraid we have some serious time problems. Please hit the highlights.

Mr. HANSON. Very good.

This is where the Little Tennessee goes into the Tennessee River. We talked about the dam. The dam exists across there.

One of the points we make, if the river is not impounded, the channel on the left should be opened up to reestablish the migration route for the fish in the area, including the snail darter. And it would also diminish the threat of flooding as a low-cost alternative to the cost of removing the dam.

This presents an excellent site for research and development work. We have talked to scientists at Oak Ridge and others who can see this as a major lab for the purposes of research in energy and ecology.

I will skip over briefly the fact another potential of the archeological is the creation of the National Indian Cultural Center.

I would like to read five points which I think are important. I call your attention that there is a value matrix of compatibility in section 5.3, which you can investigate at your leisure. The site is a major natural resource containing important archeological features.

Secondly, these early investigations seem to justify further study of complementary alternatives and variations.

Three, that the dynamics of regional social and economic conditions are such that the site data base warrants updating. Things have changed: that is, public attitudes, and changes in migratory patterns (people moving from the North to the South).

Four, time and current conditions of the land area still permit and even make imperative that the above considerations be made.

And lastly, whatever futures are chosen, the land area has been so disturbed as to require continued management of a single development

district. We do not believe the land can maintain itself if turned back without any controls. And we recommend whatever the future, that a single agency or single regulatory guidelines be imposed to maintain the land area.

Thank you.

Senator CULVER. Mr. Hansen, do you have an opinion concerning TVA's contention that removal of a portion of the dam would flood prime agricultural land in the Little Tennessee valley?

Mr. HANSON. Specifically to the flooding condition, unless the second channel is opened up, flooding will exist. The conditions existing now, even though the gates are open, will flood the area. It is also necessary for migrations of fish.

Senator CULVER. Have you attempted to prepare cost-benefit analyses of the alternatives which you have discussed?

Mr. HANSON. I heard your questions earlier and I sympathize with you, but in 60 days that is not possible. We were invited to present alternatives; that is all the time we had.

Senator CULVER. Who has reviewed the alternative proposals that you are presenting today, anyone outside the university?

Mr. HANSON. We consulted many persons. TVA employees and others, to gather information. People on the site. They are acknowledged in the report. However, we did not make a public presentation.

Senator CULVER. You don't have formal review procedures or comments with any outside source?

Mr. HANSON. No, sir.

Senator CULVER. Do you believe your proposals will bring greater public benefits at a lower cost?

Mr. HANSON. We have investigated other alternatives with promising benefits that have not been considered.

Senator CULVER. You are calling for more extensive study of those possibilities?

Mr. HANSON. I hate the redundancy of more studies, but our investigations show the rare more viable options than previously thought of.

Senator WALLOP. I only have one question, and I realize you only had 60 days. It must have become apparent to you, or you must have some feeling, or some sensation that some of the alternatives that you recommended might have the effect of producing an impact on funds. Of the three, are there any that you lean toward more than others?

Mr. HANSON. The three generic forms, retention, impoundment, and a combination all have specific characteristics, some good and some bad. We are excited about the third. We got into it almost by default because it was one possibility that we felt would be a more rational way of trying to retain the system, if it were to be retained, and at the same time generating a new set of revenues that would be a regional benefit and contribute to setting costs off considerably.

As an example, the Indian Cultural Center; the archeological sites could be made economically viable. We see tourism and recreation as a form of economic activity, and we think that possibility has a marked potential simply for the reason there are already many, many reservoirs available in the region.

Senator WALLOP. Under whose aegis, the Federal Government or Tennessee?

Mr. HANSON. Sir, we are not even speculating. We are just saying that is a possibility. I assume it might be cooperative. It certainly would involve the Federal Government, but maybe the State university as well.

Senator WALLOP. Would you suggest TVA drop its role?

Mr. HANSON. Quite the contrary. I think TVA is the most important. The work they have done and the experience on that site, I think, is invaluable. I assumed TVA was part of that Federal system.

Senator WALLOP. There was never a doubt in my mind that they were. But it is interesting that TVA's hat is either white as driven snow or black as Tennessee coal depending on the instance it is referred to.

Mr. HANSON. If you like it or not, they are very good at what they do. I think it is a matter of giving them guidance what should be done. They are highly qualified professional people. Given direction, I am sure they can manage it as well as any other agency.

Senator WALLOP. I take your word for it. But I am flabbergasted that we are here spending your time and a considerable amount of the University of Tennessee's money and Federal money and everything else over an agency that is highly expert in what they are doing. Why are we worried if their expertise has been so magnificent up to now?

Mr. HANSON. Ours is a response to a request, sir. This is simply a report looking at alternative futures at the request of the House of Representatives, and it is a matter of common practice. In terms of the values or goals of the project, or alternatives. I am quite comfortable with the fact that TVA can handle it.

Senator WALLOP. Maybe so. But again, I would just say it must reflect on somebody. It didn't just rain down and suddenly there was a project. That idea generated from somewhere.

Mr. HANSON. I am embarrassed to admit, I am comparatively new to the area and from Chicago. And I had to look at the map to find Tellico.

Senator WALLOP. I have to look on the map to find Tellico, too, but the project came from somewhere. It must be a reflection on somebody or we shouldn't be wasting our time. Where did it originate?

Mr. HANSON. I assume from TVA. Ours was a response to what are the options to be considered.

Senator WALLOP. I am not criticizing you; your work was done. They are either excellent and had misguidance by somebody, or there is somebody that isn't excellent. We are looking at 63 million public dollars we are never going to get back. Somebody has made a mistake.

Mr. HANSON. I wouldn't necessarily agree it won't get back. You may capitalize on it. There are scientists saying the site is unique for research and development, a condition which couldn't be afforded if it meant the disruption of natural resources to create the environmental site. I think the recovery should be thought of in a different context. I don't think that cost-benefit analysis will serve you well if kept in the same frame of reference.

On the other hand, if you look at alternate frames of reference you might find other values, both tangible and intangible.

Senator WALLOP. I don't think cost benefit really does serve you well anyway. It is a remarkable thing to lay on public expenditures of

money when it is a figure that is so manipulatable. GAO has no idea what the cost-benefit is.

I commend you on a good piece of work.

Senator CULVER. Thank you very much Dean Hanson.

Our next witness is Mr. Boyd Evison, Superintendent of the Great Smoky Mountain National Park, the National Park Service. Mr. Evison, you may proceed.

STATEMENT OF BOYD EVISON, SUPERINTENDENT, GREAT SMOKY MOUNTAINS NATIONAL PARK .

Mr. Evison. Mr. Chairman, I appreciate being given this opportunity to share with you my views regarding the relationship between Great Smoky Mountains National Park and that 33-mile stretch of the Little Tennessee River valley affected by the Tellico dam snail darter issue.

The relationship of physical proximity between the two areas is obvious if you look at the map. The upstream end of the affected area is a couple of minutes' drive away from the park, which is the most heavily visited of all the national parks in the United States, and from the terminus of our Foothills Parkway, administered by the National Park Service.

Some aspects of the relationship between the two areas probably lend themselves handily to quantification; some do not. The latter have to do with values that are highly subjective, but no less real, values that probably come closer to the heart of what national parks are all about than do those handily measured things that generally are reflected in cost-benefit ratios.

The values that I refer to tend to be neglected, and I guess we tend to be a little reluctant to refer to them because they have more to do with human emotions, with concern for generations not yet born, and with matters relating to the heart and soul of human beings rather than with the accumulation of more "things." "Things" are easier to measure and more comfortable to discuss, it seems.

But those values—emotional, intangible—relate clearly to the quality of human life. They relate to diversity in the human environment, to unduplicated and irreplaceable options for human experiences and increased knowledge. Thus, they may deserve a place, as fundamental givens, in the computation of costs and benefits of projects affecting them. They are values no more easily measured than are your and my love for our children, our hopes for our grandchildren, or our dedication to freedom and justice.

In the case of the Smokies, those values have to do with sanctuary. The Great Smoky Mountains National Park is a half-million acre area embracing one of the world's most remarkably diverse arrays of plant and animal life, giving refuge for those living things and the systems and processes to which they are integral.

And the great chunks of unspoiled mountain terrain provide sanctuary for the human animal as well, a place in which to find—even if only from afar, by knowing it's there—respite from the sights, sounds, smells, and pressures commonly associated with the everyday life of most Americans.

I don't know how to assess in understandable units the value of a day on trails free of the presence of internal combustion engines; free of the smell of the neighbor's kitchen exhaust or barbecue rack; free of police whistles, traffic lights, and clocks.

I don't know how to measure the good done to the human psyche by immersion in an environment dominated, instead, by the smell of clean air, flowers, and fallen leaves; by the sight of uninterrupted wild land vistas and untamed wildlife; and by the sounds of wind in trees, rainfall, stream rapids, birdsong—and of silence, punctuated by the snap of a twig or the rustle of an unknown creature's passing in the night—which can still be found in the Great Smoky Mountains National Park.

These things are obviously very difficult to measure; but they matter, nevertheless. These options for special human experience are, in fact, threatened. It seems to me that the Tellico or Little Tennessee recreational and cultural complex could significantly reduce the threat.

Most of the park's use is concentrated along and near its 200-plus miles of public roads. Those roads can handle considerably more traffic on most days, and certainly over a year's time than they do now. But the quality of each sightseer's experience is surely impaired, to some extent, by each increment in the density of such use.

The chance to "have the place to yourself" by coming early or late in the day, or in the off-season, is steadily diminishing. And so we may in the future need to limit the amount of automobile use more directly than by letting congestion-avoidance do it for us.

The park beyond the roads seems much nearer saturation than are the roadways. Recent studies indicate that campsites and trails have suffered cumulative degradation through long-term overuse and misuse. I think we can relieve this to some extent by a variety of measures. But the extent to which we can do this is limited by considerations of topography, resource integrity, and the preservation of options for those human experiences whose availability cannot be assured elsewhere, options often having to do with freedom and solitude. For example, uniform distribution of use at some "optimal" capacity level is not necessarily the ideal—it should always be possible in the Smokies, to find places where one may hike for days at a time and see few, if any, other people. If not there, where else in the East?

So, the Great Smoky Mountains National Park is a mixture of periodically dense roadway use—capable of some increase—and sanctuary from the effects of a modern society whose very real benefits are sometimes simply too much with us.

That 33-mile stretch of the Little Tennessee affects, and is affected by, those values, experiences and resources of the Smokies in several ways:

First, a Little Tennessee recreational-cultural complex could offer an attractive alternative to the Smokies for many of our visitors, particularly for those who come from within 55 miles or so of the park. Visitors from nearby averaged 11.3 days per year in the park in a recent computation, and 20 percent of them were in the park 38.4 times in the year.

Second, the presence of such a major attraction, offering experiences fully comparable to many of those most sought after in the Smokies, would help encourage the flow of traffic around the park.

Such a flow would provide for excellent views of the park, would give access to short spurs reaching existing developed areas on the park's edges, and would give private enterprise much increased opportunity to profit by providing needed services and facilities associated with distinctive areas outside of the park.

As an alternative attraction, a Little Tennessee complex based on the free-flowing river and unflooded archeological and historical sites could supplement the Smokies, to a considerable extent, as a place for sightseeing, picnicking, camping, history-absorbing, stream fishing, horseback riding, and boating. These are among the foremost reasons for most visits to the park.

Among area residents, more than two-thirds come to picnic, nearly two-thirds to hike or walk, 28 percent to fish, and 25 percent to camp, and 16 percent to ride horseback.

Stream fishing, in fact, is the activity for which the demand is expected to increase most dramatically by 1990 in the Smoky Mountain Region. A 33-fold increase in demand is forecast by State and Federal planners. I have some misgivings about the projections, but I think at least that is a fair index to the kind of increase in interest that can be expected.

Each of those park activities and attractions can be matched in quality, and some of them substantially exceeded in quantity, without degradation of unique resources or conflict with extensive agricultural use in the valley of the Little Tennessee. Thus, it appears that the serious threat of stringent restrictions or loss of resource integrity in the park could be greatly reduced by a river-based recreational-cultural complex along the Little Tennessee.

Senator CULVER. We have an extensive list of witnesses yet this morning, and we are under a rule to adjourn the hearing at 12:30, so we have serious time constraints. We may submit some questions to you for the record.

Senator Wallop?

Senator WALLOP. Nothing, except I would like to welcome you here.

Senator CULVER. Mr. Plater?

STATEMENTS OF ZYGMUNT J. B. PLATER, PROFESSOR, WAYNE STATE UNIVERSITY LAW SCHOOL; HIRAM G. HILL, JR., TENNESSEE ENDANGERED SPECIES COMMITTEE; DAVID ETNIER, DEPARTMENT OF ZOOLOGY, UNIVERSITY OF TENNESSEE; DR. JEFFERSON CHAPMAN, RESEARCH ASSISTANT PROFESSOR, TELlico ARCHEOLOGICAL PROJECT; DR. WILLIAM RUSSELL, LITTLE TENNESSEE RIVER ALLIANCE; ALFRED DAVIS, LANDOWNER; JEAN RITCHEY, LANDOWNER; AND BENJAMIN BRIDGES, ATTORNEY FOR THE CHEROKEE INDIANS

Mr. PLATER. My name is Zygmunt Plater. I am going to be joined by a number of people. Could we bring them all up at the same time?

Senator CULVER. Could you identify them please for the record?

Mr. PLATER. This is Mr. Hiram Hill to my left, and to his left, Dr. Jefferson Chapman of the University of Tennessee Department of Anthropology. And on my right, Dr. David Etnier who discovered

the snail darter in 1973, and on his right, Mr. Ben Bridgers, who is tribal attorney for the Cherokee Indians. We have some citizens from the locality of the dam, Mr. Alfred Davis and Mrs. Jean Ritchey.

Senator CULVER. Is Mr. William Russell here?

Mr. PLATER. He had a meeting and will be arriving shortly.

Senator CULVER. Why don't you begin, if you would, please.

Mr. PLATER. I am Zygmunt Plater, an environmental law professor at Michigan's Wayne Law School and, starting in 1974 when I was a member of the faculty of the College of Law in Knoxville, Tenn., I have been petitioner, coplaintiff and attorney in the Tellico dam case we are discussing today.

It is quite clear that the first thing that most people heard about this case was its extreme nature—a very small 3-inch fish holding up a dam—and it was held out as an extreme case, showing the “inflexibility” of the Endangered Species Act. As you have started to see today, there is a great deal more to the story than that.

It turns out, indeed, that the three-inch fish also represents a set of considerations for the public interest that had not previously been considered. It indicates, also, that any “inflexibility” of the act may lie in the approach taken by the agencies which implement the act rather than the act itself. Amazingly, the GAO study indicates that, even though with the dam ready to be closed, it may still be the case that the Tellico project would be more valuable if the decision is made not to flood the valley rather than to flood it. We are in the process of trying to make a decision in the public interest that considers, for the first time, all of the elements involved in the project.

I would like to emphasize the basis of the citizen litigation that has lasted so long over the years, and that is—as indeed you have seen today—the little Tennessee is a unique valley. If I may, let me start with the setting which has not yet been fully explained.

This is a map of the Tennessee Valley system under the jurisdiction generally of TVA. Now, as you probably know, the main Columbia River has only a dozen or so dams . . . On the Tennessee River system that you see here on this map, there are 68 dams, running from the headwaters down to the Mississippi in a series of impoundments, step by step. At this point the Tellico dam site is one of the last areas in which there is high-quality flowing water left in the State, besides small streams and headwaters.

This dam building story, I believe, is unprecedented. And, of course, as you know, over the course of history the first two waves of TVA dam building were immensely important for the Tennessee Valley in providing power and jobs. The dams were built pursuant to a list of damsites compiled in the 1930's. As they got to the end of the list, however, the dams became more and more marginal.

Starting in the 1960's, TVA reached the end of its list and started pushing such dams as Tellico. Senator Kefauver and the local Congressman refused to support the dam. Senator Kefauver lived approximately 5 miles from this area and apparently regarded the dam as an unnecessary exercise.

As soon as Senator Kefauver died, TVA came back and started pushing again for the construction of this particular dam. It is im-

portant to note that it is a small dam. (I have thrown a pebble over it, and I do not have a strong right arm.) It is a short dam, a low dam.

Tellico was brought to Congress in 1965 and it was refused appropriations. (TVA doesn't require authorization; it is a self-authorizing organization.) But it was later brought to Congress, in 1966, and accepted on the basis (1), to encourage recreation and (2), for industrial shoreline development. The citizens, however, from the beginning felt that this sort of development, recreational and industrial, was better approached through river management of this unique area rather than building just one more reservoir.

As you see on the map, there are 22 dams within 60 miles of Tellico, and many of them already have industrial sites along them. The citizens were moved to oppose Tellico for a variety of reasons. One, this is the heart of the Cherokee Indian Nation, and it is where Chief Sequoyah was born. The archeological resources are unique, and the river is also unique because the quality of this water makes it the only place left in the entire river system where high-quality water flows in a large river form.

The uniqueness of the valley is also found in the agricultural value of its soils.

The Tellico project condemned 38,000 acres of private land to be sold back at a profit, and TVA has planned to use that profit to justify the project's marginal benefit in the first place. In any event, the citizens have recognized from the beginning that jobs and revenues are important to the region, but it appears that indeed industrial development is not likely to come to Tellico just because more new industrial sites are created, and if it is to come it would be more profitable without a reservoir.

There is no requirement for a lake for industry to locate in the area. Power projections are minuscule. The citizens who are seeking an alternative program for development of the Tellico Project have felt it would be better not to flood out the historical and tourist sites but develop them for the sake of the region's economy. There are 10 million tourists in a year passing through the Smokies, and they represent an economic potential that should not be thrown away.

I will just briefly note that the citizens have not been able to resist TVA's public relations efforts to push and promote this dam. They did, however, sue in the early seventies and held up the dam until 1973 for violations of NEPA. However, under the NEPA process, TVA never considered the alternative developments we are discussing today.

The snail darter was discovered in 1973. In 1973, as Dr. Etnier will tell you, he was swimming along and discovered the snail darter, and the latest chapter of citizen efforts against the dam began. At the time the fish was discovered, most of the valley's lands had been purchased, but not yet touched. That is where the money had gone, predominantly.

I recently went through the Department of Interior files and put together a chronology of TVA's response to the darter and the Act. The citizens groups initially began by requesting TVA voluntarily to comply with the Endangered Species Act, and to consider non-res-

ervoir alternatives for the project. TVA responded in a number of ways: It denied the relevance of the Act, it increased the pace of reservoir construction and financial expenditures and started a systematic campaign against legal protection for the snail darter. TVA maintained, first of all, that the fish did not exist as a species. When that was proved to be wrong, they insisted it was in no danger because it must exist elsewhere in the river system. They searched 60 rivers in the region but never found an established breeding population of the snail darters. The more they argued, the more evident it became that the darter was an endangered fish threatened with extinction.

The snail darter was not only a three-inch fish, it appeared, but also its existence was an indicator of what had happened to the rivers of the region. The darter used to exist throughout the eastern river system, but one by one as those 68 dams were built, its population was eliminated. This is the last stretch of clean, big flowing water, and the last place where the snail darter exists. So the species exists only because of the river's special qualities which the citizens have supported and fought for all along. The fish has acted as a barometer of human environment quality.

In 1974, the Department of Interior started communicating with TVA. From the very beginning, TVA's approach to implementation of the Endangered Species Act was that they would not consider protection of the natural population darter, but would only consider transplantation of the fish away from the Little Tennessee, . . . to anywhere else.

In 1974-1975, the Timberlake New Town, which was the major industrial development proposal by which this project was justified, lost its congressional funding, and the Boeing Corp. which was going to develop it withdrew. In early 1975, the Interior Department told TVA that the snail darter was in danger, that immediate action to conserve the species and a thorough review of project alternatives was required.

TVA replied that dam construction and timber cutting per se didn't hurt the fish. The only threat was from the subsequent reservoir that would result, they said, and there would be an ample opportunity to review whether the darter was endangered and transplanted it somewhere else before closing the dam. There was never a consultation with regard to conservation of the natural population of the species; the only discussion with the Fish and Wildlife Service were aimed at TVA's arguments for taking the darter somewhere else.

In March 1976, the Department of Interior again indicated there had not been consultation as required by the Endangered Species Act. TVA replied that they had fully and exhaustively consulted with the Department of Interior on anything that could be done with regard to preservation of the species through transplantation.

The quotation from TVA's letter to the Fish and Wildlife Service was that, "We have fully and exhaustively explored with the Department of Interior with regard to all options available in completing the project and preserving the darter, and we will be happy to consult further if you have additional suggestions that will allow completion of the project."

In May of the same year, the Department of Interior's letters were still trying to get consultations as to the alternatives which we are

discussing today, and TVA took the position that it would not discuss such alternatives. In 1976 TVA still was arguing that the listing was not scientifically accurate; the Latin name had not been published prior to the official listing date. They also argued that listing the fish would do nothing to improve the TVA program for conservation of the snail darter.

Work continued on the dam until the injunction came down in January, including extensive work while this case was on appeal for an injunction against closure of the dam.

Now, at the end of this long history, we see not only that the consultation under the Endangered Species Act which was supposed to take place was a severely limited inquiry from the TVA point of view which did not comply with the requirements of the law, but also that the GAO study and the alternatives study requested by the House subcommittee indicate, amazingly, that there are still other practical alternatives to closing the dam and destroying the valley.

We ask you to set a good precedent in handling the Tellico case because a lot of people are looking at your inquiry for guidance on the act in general. It is important that this case be studied rationally and fully before a decision is made.

Senator McClure yesterday asked how we can prevent a flood of such cases from coming to Congress: If you set a precedent now for rigorous review of this project, other agencies will not flock to you with a host of projects they wish to have exempted from the act. Your review will discourage the agencies from making the act into a political football.

And I think there is an interesting further point to note with regard to Tellico: there is no rush to close this dam. We already have 68 of them. There is no rush to close the dam because this project was justified in terms of industrial lots, and there are already thousands of acres of industrial lots around impoundments in Eastern Tennessee. There is no rush to provide another flat water recreation opportunity (for 6 months of the year, lying in mudflats at other times) because there is already enough of that around.

And there also is going to be a new TVA in coming years. The President has signaled that TVA will not be disbanded, as had been rumored, but rather TVA is going to be given a renewal or rededication of purpose to serve the regional development of the area in an updated, more progressive program.

There is no hurry to destroy this valley. The river is restoring itself, and there is time for TVA and the other agencies of the U.S. Government to make this project something that we all can be proud of. It is not the course of reason to say we have wasted so much good money that we must continue to throw good money away without thinking of better ways to capitalize on what we have.

TVA has run out of places to build dams. The current construction is the last of TVA's dam-building projects. It would be a tribute to TVA if, instead of the last of the marginal dams, this Tellico project would become the first of TVA's new regional development projects. The assets are there; the ability to do that is there; and we are blessed by a truly unique river resource. It would be a shame if those possibilities did not get pulled together in the service of the public interest.

Thank you. That is a voluminous summary of my statement. I would be pleased to answer questions.

[Mr. Plater's statement follows:]

STATEMENT OF ZYGMUNT J. B. PLATER

THE TELlico Dam

I am Zygmunt Plater, an environmental law professor at Michigan's Wayne Law School and, starting in 1974 when I was a member of the faculty of the College of Law in Knoxville, Tennessee, I have been petitioner, co-plaintiff and attorney in the Tellico dam case we are discussing today.

I regret that the Tellico case has had to come here to Congress, absorbing so much Congressional and staff time in preparation, for it is a prime example of the kind of case which could and should have been resolved, like hundreds of others, through good faith interagency consultation under the Endangered Species Act.

Nevertheless, the conflict between the TVA and the snail darter is the first such case to be brought for your oversight review. It has become one of the national precedent cases under the Endangered Species Act, and the thoroughness and consideration given this review will go a long way toward establishing sound practices for agency actions and citizen concerns under the Act in the future.

THE TELlico AS A CASE STUDY: SETTING

The Tellico dam is one of the last two dams to be built in the Tennessee Valley area; as a glance at the attached map will indicate, there are more than 60 other dams already built on the river system, making it into a series of long impoundments from its headwaters in the east all the way down to the Mississippi. Most of these were compiled in a 1930's list of potential damsites. The first and second waves of dams to be built were strategically important to developing the Tennessee Valley, providing power, jobs, and main channel industrial transport. By the end of the list, however, the damsites have become more and more marginal; the most recent dams, including Tellico, have no electric generators, little flood control effect, and diminished relative benefits.

The Tellico damsite lies at the end of a shallow scenic valley adjoining the Great Smokey Mountains National Park. Its elevation falls only 72 feet in 33 miles, so its impoundment level is severely limited. But the valley is extraordinarily valuable in public terms: after 68 dams, it has the last such clean, cool flowing river left and contains the region's finest and most extensive trout-fishing waters; there are 16,000 acres of prime agricultural land along the river; the valley area is a recreational resource which adjoins both the Smokies and the Cherokee National Forest, and the rich bottomlands contain some of the most important Cherokee, colonial, and prehistoric sites in the region, including Chief Sequoyah's birthplace at Tuskegee, Chota-tle Cherokee Jerusalem, Tennessee which gave its name to the river and the state, and two sites which have the oldest continuous evidence of human occupation in the U.S.

THE PROJECT

The TVA turned to Tellico in the early 1960's when virtually all other dams in the 1930's list had been built. They solicited the support of Senator Estes Kefauver and the local member of Congress, Rep. Frazier, but both rejected the need for the dam. After Sen. Kefauver died, TVA renewed its efforts, and after once being rejected by Congress finally succeeded in getting initial appropriations in 1966. (Since TVA was established as an agency with emergency powers, it does not have to get Congressional authorization for its projects.)

The Tellico Project, it is important for us now to note, is not a traditional water project: it was justifiable only as a regional development project which the agency chose to design around a dam. The benefit-cost justification had recreational management and shoreland development as its primary purposes, with only minor benefits in flood management, barge traffic, and power (via a small canal into an adjoining lake). The land development was premised upon the construction of Timberlake New Town, an industrial town to be funded by Congress and the Boeing Corporation (both of which decided to withdraw in 1974-75) and explains why TVA condemned 38,000 acres, or more than twice as much land as necessary for the reservoir. By reselling this land at a profit, part of project costs could be recaptured. Neither purpose requires the Tellico reservoir, however, since recreational management of the river valley offers advantages over one more seasonal reservoir (22 within 50 miles; all TVA lakes lie drawn-down into mudflats for 6 months a year), and industrial development has no lake prerequisite (Timberlake was patterned after the inland Minnesota Experimental City; the lack of a logical tie between a lake and industrial development is shown by Melton Hill Lake, 4 miles from Tellico, where more than 1100 industrial acres still lie vacant after 14 years, and only one industry using the lake has located there, despite ample barge facilities and a location 10 miles closer to Knoxville and Oak Ridge). Congress did not appropriate money for Tellico on the traditional water-project bases, but rather on the understanding that it would be a regional development project.

PROJECT OPPOSITION

The special public qualities of the Little Tennessee River Valley, and the marginal nature of the Tellico Project, combined to ensure the prolonged opposition efforts that have continued against the reservoir since the early 1960's.

The dozen local citizen groups active in the 1960's did not attack the idea of a regional development project in general, but rather the dam segment of the project. Even after the concrete dam was poured in 1967 they urged that the project be redesigned for flowing river management; since the dam construction costs were and still are a minor portion of total project costs, such modifications appeared both desirable and feasible.

In 1971 the local groups, led by the Association for the Preservation of the Little T, local farmers, and Trout Unlimited, successfully argued that TVA had to comply with NEPA. An injunction halted construction until 1973 when the district court accepted a revised environmental impact statement, though TVA never considered river-based development modifications.

In 1972-73, the Governor of Tennessee, Winfield Dunn, officially requested TVA to alter the project plans to eliminate the reservoir plans. TVA informed the Governor that they did not agree with him, and continued construction activities as soon as the court injunction was lifted. (Nor did the agency alter its plans when the Timberlake project collapsed, removing one of the primary underpinnings of the project justification.)

THE SNAIL DARTER

The final chapter of citizen opposition began in August 1973, when Dr. David Etnier of the University of Tennessee Department of Aquatic Biology, a nationally recognized darter expert, discovered the snail darter in the broad river shoals near Coytee Springs. It soon became clear that the fish existed nowhere else on earth, though it once had probably inhabited the entire eastern portion of the river system.

The snail darter became a lawsuit, not just because it was an endangered species that would be completely eliminated by the dam, but also because it possessed qualities that made it a sensitive biological indicator of precisely the river qualities that concerned the citizen advocates. The species had been reduced to a relic population by its extreme sensitivity to water quality conditions: it requires clean, clear flowing big river water with extensive shoals and clean gravel bottom conditions. By its very existence in the Little T, and only the Little T, it gave legal recognition to the fact that this stretch of river, too, was the last of its kind.

ADMINISTRATIVE ACTION

The pro-river citizens initially hoped that TVA would voluntarily review its Tellico activities in light of the apparent statutory problem with the snail darter. The project expenditure was only \$35 million, or 27% of the present \$127.5 million projected budget; little earthmoving work had been undertaken, and rumors around Knoxville were that Boeing Corporation was thinking of pulling out of the Timberlake segment of the project (which it did a year later).

Chairman Wagner soon made it clear, however, that the agency would not review the project until forced to by citizen litigation. Referring throughout to the "so-called snail darter" TVA first took the position that the fish was not a species. When it was recognized as a species by the scientific community, the agency argued it was not endangered, first because it certainly existed in many other places, then when a search of 60-70 rivers failed to locate any other snail darters, because it certainly could live in an impoundment. When scientific evidence indicated it could not live in an impoundment, the agency argued that the fish could not be listed because its Latin name was still being processed.

Beginning in the fall of 1974, the Fish and Wildlife Service maintained continuing efforts to obtain TVA consultation on protection of the species in its natural habitat. The construction agency, however, insisted that the only conservation efforts to be considered could be removal of the darter from the project area. Interior repeatedly complained that this approach did not meet "the intent or requirements under Section 7 of the Act." TVA replied "we shall be happy to consult further if you have additional suggestions or plans which will allow completion of the project . . . and conserve the snail darter." (Emphasis added.)

TVA refused to enter requested formal consultation with the Service on any basis besides reservoir completion, though Interior suggested a variety of possible non-reservoir alternatives deserving of study. The agency continued construction throughout its discussions with the Service, declaring that timber-cutting and dam construction did not themselves directly pose a threat to the species, despite Interior's logical declaration that the consequences of those actions "would result in destruction of the ecosystem."

The agency also systematically denied that the law applied to the Tellico project, on the ground that appropriations had continued, that it was increasingly near completion, and that it would be "foolish" to stop for consultation over a little fish.

As a result of the administrative communications, the listing of the fish and its critical habitat were delayed, to October 1975 and April 1976 respectively, and no formal consultation ever occurred with regard to protection of the fish in its Little T habitat. Since the date that Interior required return of juvenile fish captured by TVA back to their habitat in the Little T, TVA has refused to take any active conservation measures for the darter in its natural habitat.

LEGAL ACTION

After a year and a half of attempted persuasion, the citizens gave up and filed a lawsuit in February 1976. The trial court found . . . all the elements of multiple violations of the Act, but declined to enjoin because the project had been brought so far along. The Sixth Circuit accepted the facts and required compliance with the law via an injunction. The Court's theory was that regardless of how long the violation had continued and construction pushed toward a conclusion, the law required a halt so that alternatives could be evaluated by the agencies and Congress.

The injunction is currently being presented to the Supreme Court by TVA's petition for review.

ACCEPT NO SUBSTITUTES

The fundamental problem revealed in TVA's reaction to the statute, the snail darter, the Department of Interior's administrative efforts, and citizen concerns, is that the agency persistently declined to consider any protection of the endangered species in its natural habitat in the Little Tennessee River. Put another way, TVA has refused to consider any alteration of the Tellico regional development project from the reservoir impoundment model as originally proposed.

The most important lesson of these hearings is that conflicts between public development projects and endangered species can be reconciled if the agencies consult in good faith, with an eye toward identifying project impacts and modifying projects where necessary to be compatible with conservation of natural populations.

The GAO and alternatives studies presented here make clear that even now, remarkably, with the dam virtually complete, the project may be more valuable and more cost-justified if the valley is not flooded. The Valley can be developed for agriculture, recreation, industry, tourism and historical management. It would be fitting if this committee, after reviewing these facts,

would send the issue back to the agencies to develop, for the first time, viable alternatives for the project area in addition to the flooded impoundment option. There is no need for an immediate decision: the region already has more than enough industrial lots on lakes, and flatwater impoundment recreation (Tennessee already has more impoundment area per person than any other place in the world).

Instead of the last of the marginal dams, it would be fitting if TVA, which has been shifting its attention to regional development projects, made Tellico a showpiece as the first of the new regional economic demonstration project areas.

THE NATIONAL PRECEDENT

After NEPA was passed in 1970 there was a chorus of voices crying for alterations in the statute to reduce its scope or exempt projects. None of those bills passed, and the Republic survived.

Tellico is a prime opportunity to set a formal precedent under the Act: by insisting that no case be forced to a decision by Congress until logical alternatives are developed, that no agency avoid federal laws by ignoring them long enough, that no exemptions be made from the Act unless the public interest is demonstrated to require it, and that Congressional review will be rigorous and balanced, the committee will ensure that the Act will not become a political football. Agencies will be encouraged to resolve potential conflicts in good faith in the administrative process, and the public will have the best chance of achieving both development and the conservation policies that motivated the Congress to pass the Act so overwhelmingly in 1973.

This concludes my prepared testimony; I will be pleased to respond less voluminously to your questions.

Senator CULVER. Why don't we move to those statements.

Mr. PLATER. Dr. Etnier, first of all. You may have questions.

STATEMENT OF DAVID ETNIER

Mr. ETNIER. Thank you, Zyg.

I think Zyg has learned more about biology during the course of events here than I have about law.

There are about 135 species of darters in North America. They only occur in North America east of the Rocky Mountains, and about 85 species occur in the boundaries of Tennessee in various river systems. I prepared the scientific description of the snail darter, and a publication describing an additional new darter came out recently in which I was a coauthor. I am writing a book on the fishes of Tennessee, in which the darter section has already been completed, and it includes detailed accounts of the 85 species in Tennessee. Some of those darters are very difficult to differentiate. In certain river systems, especially in middle Tennessee, there are species that live together in the same stream and even I have to look very, very closely to tell what they are.

The snail darter is not one of these. The moment I picked it up on August 12, 1973, I realized that I was looking at a fish that had never been seen before, at least east of the Mississippi River. My immediate impression was that it was the same or most closely related to a fish recently rediscovered in at least two streams in the Ozark system.

On capturing more specimens and sending to a colleague at Tulane University, and examining specimens of the Ozark species, we arrived at the conclusion that the fish in the Tennessee River was unique and different and deserved to have its own species name.

I spent the better part of 6 or 7 weeks preparing the so-called scientific description of the snail darter. The manuscript was edited and then sent to the editor of Biological Society of Washington, and it was there edited by the chief editor. The requested changes, which were not very many, were made and the publication appeared in January 1976 in the proceedings of that society. The name "tanasi" is after a Cherokee town that was the capital prior to the establishment of Chota as the capital. Both Tanasi and Chota were located 30 miles upstream from the place where I first found the snail darter.

Because its closest relative is in the Ozarks, it is reasonable to assume that the snail darter's immediate ancestor occurred in the Mississippi River basin and since has migrated to the east and west. Indications are that most of our fish species are probably in the neighborhood of 30 million or 40 million years old. Perhaps some of them have evolved within the last 2 or 3 million years, and maybe a few are post-Pleistocene, but generally we are dealing with entities that have remained unchanged for a long period of time.

It is only reasonable to assume that the progenitor that gave rise to the snail darter at one time inhabited this area, and with changes in the Pleistocene, this area became lower gradient. The thing that gave rise to the snail darter and its Ozark relative were pushed up in the upland areas, one form into the Tennessee and one form in the various river systems in the Ozarks.

Within the last 100 years, impoundments have reduced the range of the snail darter and pushed it—but not really pushed—but eliminated

it from the rest of the Tennessee River system and it remains only in the Little Tennessee.

Dr. Carter Gilbert from the University of Florida was in the Little Tennessee River collecting snail darters with me recently. He has been collecting fish in east and central North America for 30 years. His statement was:

As soon as you step foot into the Little Tennessee River, as an ichthyologist you are aware of the fact you are sampling a habitat that has never been experienced before. It is unique.

If the argument that I presented concerning the ancestry of the snail darter is accepted, it follows that the snail darter has had access to other river systems, including the Ohio and Cumberland. It now is left only in the Little Tennessee River and is serving perhaps as a barometer or an indicator of a very special habitat. Carter Gilbert's idea that this was a unique habitat is a very subjective one. But if we say this is the only place this species of fish lives, now we are making an objective decision as to uniqueness of this habitat.

Thank you.

[Mr. Etnier's prepared statement follows:]

14 July 1977

My name is David A. Etnier. I have been with the Department of Zoology at the University of Tennessee since fall, 1965, and as of September, 1977, I will be serving as full professor. Both my B.S. and Ph.D. degrees are from the University of Minnesota. I have published about 15 papers concerning fishes and aquatic insects. I have memberships in several professional societies and am currently serving as president of the Southeastern Division of the American Society of Ichthyologists and Herpetologists, and as president of the Southeastern Fishes Council. In my current position my time is spent training graduate students in aquatic biology, teaching mostly upper division and graduate level courses in aquatic biology, and in continued research.

During August, 1973, it seemed possible that I would again be asked to serve as an expert witness in the forthcoming NEPA suit against the Environmental Impact Statement for the Tellico Dam. I had testified in the earlier suit concerning the former and probable continued occurrence of certain species of uncommon fishes in the Little Tennessee River system. (These were then called "rare and endangered" species--the Endangered Species Act was not passed until December of that year.) The lower twenty or so miles of the river had not been surveyed for fishes, and because this portion of the river is least affected by temperature and volume vagaries of unstream dams, it seemed the most likely place to look for interesting elements of the native fish fauna. With this in mind Robert A. Stiles and I visited the river at River Mile 7 on 12 August 1977, equipped with face masks and snorkels. We didn't see many fish, but on this trip I saw and captured what I immediately recognized to be a species never before seen in or near Tennessee that quite likely represented an unknown and undescribed species. This proved to be the case, and the description of the snail darter, *Percina tanasi*, appeared in the proceedings of the Biological Society of Washington, Vol. 88(44), p 469-88, 22 Jan. 1976. The snail darter was proposed for endangered species status during summer, 1974, and the initial rule making appeared in the Federal Register, June, 1975, Vol. 40(117), p 25597-98. It was finally listed as an endangered species in Federal Register Vol. 40 (197), p 17505-06, 9 Oct. 1975.

Both TVA biologists and my former graduate student, Wayne C. Starnes, have done extensive work studying various aspects of the biology of this interesting species. I am generally familiar with the results of this research. TVA has attempted to transplant the snail darter into several additional localities, with recent emphasis placed on a short stretch of the Hiwassee River just above the mouth of Ocoee River. It is too early to predict the outcome of this transplant from available data. The encouraging information that there has been at least one year of limited reproductive success should be tempered by the circumstances of the transplant (some 700 specimens, mature and ready to spawn, were stocked), and the excellent biological reasons for supposing that there is no suitable snail darter habitat in the Hiwassee River.

The Tellico Dam is currently obstructing flow patterns in the Little Tennessee River, and a large proportion of young-of-the-year snail darters apparently drift downstream to areas below the dam and are unable to return to upstream spawning shoals. Snail darter populations in the Little Tennessee River are now well below those that were encountered prior to completion of Tellico Dam, and the limited information I have suggests that populations are approximately one-fourth of their pre-dam levels. At present it appears that snail darter populations in the Little Tennessee River are still viable.

Mr. PLATER. We will continue with the panel quickly so you will have a chance to answer oral questions. I think Dr. William Russell at the end of the table may be known to you. Dr. Russell is representing here today the Little Tennessee River Alliance.

STATEMENT OF WILLIAM L. RUSSELL

Mr. RUSSELL. Mr. Chairman and distinguished members of this committee, my name is William L. Russell, and I sincerely appreciate this opportunity to present my views on the Endangered Species Act and the Tennessee Valley Authority's enjoined Tellico project on the Little Tennessee River.

I am a geneticist by profession and a conservationist by avocation. In both capacities I applaud the Endangered Species Act. The profound importance of this legislation was emphasized in a quotation printed in the June 24, 1977, issue of "Science," the publication of the American Association for the Advancement of Science. If the whole history of the planet Earth is represented by a time span of 1 year, then conditions suitable for life have existed for approximately the latter half of that year. Mammals appeared in large numbers shortly before Christmas, and man emerged at 5 minutes before midnight on New Year's Eve. The period since A.D. 1600, when man caused the extinction of the Dodo, amounts to 3 seconds on our time scale, and the last quarter of a century, when the disappearance of species really began to escalate, represents only one-sixth of a second—a twinkling of an eye in evolutionary time. In this context the Endangered Species Act is indeed timely and important.

Since I happened to be in Washington this week, serving on another committee, I was asked to speak to you today on behalf of the Little Tennessee River Alliance. I am a member of the board of directors of one of the organizations belonging to this alliance. The alliance is a coalition of many organizations. It includes the Tennessee Conservation League, which is the oldest and largest conservation organization in Tennessee, and the one officially affiliated with the National Wildlife Federation. Other members of the alliance are the Tennessee Endangered Species Committee, the Sierra Club, the Eastern Band of the Cherokee Nation, Smoky Mountain Hiking Club, Tennessee Audubon Council, Trout Unlimited, Ann Arbor Group of the Little Tennessee River Alliance, Tennessee Citizens for Wilderness Planning, Tennessee Environmental Council and the Tennessee Outdoor Writers' Association.

The alliance was formed this year after the Sixth Circuit Court of Appeals ruled that TVA must halt all work on its Tellico project, because it would violate the Endangered Species Act. The purpose of the alliance was to try to find a positive, constructive solution to this conflict between TVA and the law. For years many of the conservation organizations had felt that the Tellico Dam was not justified economically or environmentally. Bringing the views of the various groups together, the alliance concluded that many of the benefits of the Tellico project, plus additional ones, could be achieved without the dam and reservoir. A preliminary investigation by the alliance indicated that it was highly likely that, even at this late date, a modifica-

tion of the project that would avoid closing the dam might not be an economic loss.

I regret very much that I have not been able to attend the hearings earlier than a few minutes ago, but I presume the committee has already heard adequate testimony on the many very real benefits that would be lost if the dam is closed: the loss of prime agricultural land, historical and archeological sites, the loss of a valuable recreational resource, the loss, along with the snail darter, of one of the Southeast's last big river environments, and so forth. Because of these, the alliance felt that a well-planned agricultural, tourist and industrial development, without the dam, might prove more economically sound, as well as far less environmentally destructive, than the reservoir project. Accordingly, the alliance recommended that Congress approve a study of such alternatives. I believe the first suggestion was that the study be conducted by the Departments of Interior and Agriculture and by TVA. As you know, the General Accounting Office subsequently started a study which will provide useful information along these lines. It is gratifying that some of the conclusions already reported seem to be indicating that the alliance's constructive suggestions may really be viable alternatives.

The Alliance felt that if the alternatives were viable, TVA would have a golden opportunity, having already acquired the land, to fulfill its mission for the welfare of the people by showing what it could do with an imaginative multipurpose development associated with a river instead of a reservoir.

We hope that TVA will still see it this way, that it will take this bold shift in direction that will, at the same time, resolve the conflict with the Endangered Species Act.

There is a widespread feeling, shared, as you know, by some Members of Congress, that although TVA is still to be congratulated on many of the things it is doing today, its attachment to dam building has gotten out of hand. Unless there is a change in TVA's attitude, the Little Tennessee River Alliance respectfully submits for your consideration the view that the problem the committee is facing today is not a problem with the Endangered Species Act, but a problem with TVA. We sincerely hope TVA will responsively and responsibly help you to solve it with no harm to the Endangered Species Act and no harm to the endangered species.

STATEMENT OF HIRAM G. HILL

Mr. HILL. My name is Hank Hill. I won't read my statement, but I would ask that it be put in the record.

I would like to summarize a few of the reasons that our group, the Tennessee Endangered Species Committee, has for opposing the dam. First, Senator Wallop, you asked several times what we are going to do with the \$60 million that would be lost. I think we can prove without much doubt, since TVA has income from projects, we feel this will be a benefit now that the project has stopped. These moneys have been paid into the local economies.

We feel the question should be asked why TVA spent money to complete Tellico Dam—

Senator WALLOP. That is exactly the question that I asked, if you will forgive me for interrupting you. I didn't suggest we were about to waste money, but the point was being made that TVA was excellent in what they do. I don't believe that displays—

Mr. HILL. They build dams very efficiently, if all you are talking about is pouring concrete and making concrete forms.

Senator WALLOP. I suggest to you that was not the case. What we were asking is under whose aegis would this valley be developed, and under who's philosophy, and was it the Tennessee Valley Authority and the Federal Government, or was it going to be Tennessee or some other means. And we got into the fact TVA was going to do it and it wouldn't be cutting down trees.

Mr. HILL. I think TVA should have some direction from Congress as to what they should do with the valley.

If I might move along, I am sure there will be some mention of electrical power generation. Tellico has no generators. It will divert water through a channel to another dam.

Back in the days before Tellico was stopped, the primary justification for Tellico has been industrial development. And TVA, I think, claims 6,500 jobs will come to the area as a result of the project. I think most of that was based on the fact that there was a new model in the industrial plan. That model city was to be codeveloped with TVA and Boeing Aerospace. Boeing Aerospace pulled out and said Timberlake didn't make sense economically. Unfortunately, TVA claims the new jobs even though the new town won't be built.

The agricultural end, we already heard enough about.

I think we can't overemphasize the cultural nature of the valley, of the Cherokee Nation.

As to the TVA bad faith in this action. TVA began clearcutting the habitat well before daylight and had much of the riverbank in that area, including sycamore trees 30 feet in circumference, down before daylight. I think that is a horrendous action for Congress to sanction. They spent \$70 million, knowing they were in conflict with the law.

I would like to respond to the flash-flood theory. One reason that land is productive is because there have been periodic floods over the land. Periodic short-term flooding there is not that much of a problem with agricultural land. It is good for the land, as a matter of fact.

We have had problems getting our point across. The media sees a 3-inch fish versus a multimillion-dollar dam. Nobody ever questions why the dam is worthwhile. These are questions I think Congress should be addressing. What is the value of the Tellico Dam with no generation and not much flood control capacity?

So that is scary. I think that is the sort of precedent you would be setting if Tellico were allowed to be completed.

I would love to respond to any question.

[Mr. Hill's prepared statement follows:]

My name is Hank Hill, and I represent the Tennessee Endangered Species Committee (TESC), and am a plaintiff in the snail darter/ Tellico Dam lawsuit.

TVA Board Chairman, Aubrey Wagner, has called opponents of the TVA Tellico Dam Project "a few misguided individuals." Tellico's opponents are neither "misguided" nor "few." For the past 15 years the project's opponents have called only for a rational, factual investigation of the Project, and an evaluation of alternative uses for the Project area. The reasons for project opposition are obvious. The river to be eliminated by Tellico, the Little Tennessee, is the last big, clean, flowing river left in the Tennessee-Ohio system.

The entire watershed for the Little Tennessee River is either national park or national forest, therefore the integrity of the watershed has been maintained and the river's water quality remains in a pristine state. This now unique aquatic ecosystem has allowed the survival of a unique species of aquatic life, the snail darter. When big clean rivers were common in Tennessee, snail darters were also apparently abundant in the area. Now there is one big, clean river left and it is the last known breeding habitat of the snail darter.

The Tennessee Endangered Species Committee has tried for over two years to gain a complete review of the Tellico Project. Members of our group have made countless trips to Washington and have written literally thousands of letters on the subject of Tellico and the snail darter. We saw a horrendous wrong being perpetrated on the American people and the American system of justice under law and have done everything humanly possible to bring the problems of Tellico to both the Congress and the American people. While we were working within the system to alleviate the wrongs of Tellico, the TVA has consciously and purposely delayed our efforts and misrepresented the facts, while working 24 hours/day, 6 days/week to complete the project. Now that the project has been stopped I employ you not to be misguided by TVA misinformation and not to allow any decision by you concerning Tellico to be swayed against us by TVA's blatantly illegal expenditure of over \$70 million since notification of the Project's effect on the snail darter, and consequent violation of the Endangered Species Act.

Among other reasons for opposition to Tellico please consider the following:

1. Tellico has no electrical generators. TVA claims that water from Tellico would add to the efficiency of a downstream dam to increase TVA's system generating capacity by less than 1/10 of 1%, or .001. A study done by the Oak Ridge National Laboratory shows that by 1985 TVA will have excess generating capacity of more than 240 times the electricity produced as a result of Tellico.
2. Board Chairman Aubrey Wagner, before the project was stopped, called Tellico's flood control capacity "insignificant."

3. The primary justification for Tellico was a one billion dollar new town, Timberlake, which was supposed to draw industry to the project area. Timberlake was to be developed on a sub-contract basis by Boeing Aerospace. Boeing has pulled out of Timberlake, terming it "economically unfeasible." Even though the justification for Tellico is dead, the dam goes on.
4. The dam would eliminate some 25,000 acres of prime agricultural land, capable of producing twice as much economic activity as TVA's planned industrial development for the area.
5. The reservoir would flood the ancestral homeland of the Cherokees, eliminating many Cherokee villages and other pre-Cherokee archeological sites.
6. TVA spent \$70 million on Tellico construction in knowing violation of federal law.

With these facts before you, I would ask that, if any of you favor the completion of Tellico Dam and the consequent extirpation of the snail darter, you would voice that opinion now, so that we may discuss your position. Only with reasoned, well-informed debate can the Tellico Project be exposed for the Pork Barrel boondoggle and environmental tragedy that it may, only with your help, become.

Mr. PLATER. With the understanding that we will have time for some questions, let's push on with the panel's statements.

STATEMENT OF ALFRED DAVIS

Mr. DAVIS. I do have a written statement, but I will make a summary.

My family has two farms on the Little Tennessee River. One has been in our family since 1872. One of the things that disturbs us most is only 35 acres will be covered by water although they want to take 145 acres of our land. TVA comes in and says, "We're going to take your property, but in a few years we'll be selling it to somebody else at a profit." They want to buy our land cheap, pay for the dam, and make the profit. Gentlemen, this is not the American way.

One thing is some of our public officials and even TVA claims everybody in the community is for the dam. When I went to Mr. John Duncan's public hearings, more people spoke against the dam than for it.

Another quick point. TVA seems to think that they are the only ones that can bring industry in that area. In a recent issue in the Loudon County Herald, the headline reads, "New Industry, Expansions Set Pace For Record Economic Growth," and it goes on to say new industries will add \$3 million to the annual payroll within the next year. It seems to me that we're doing pretty well without TVA's help.

I am also reminded of the little town of Greenback, 3 miles from the banks of the Little Tennessee River. Recently they tried to get Federal funds to help build a town hall community building. They found they were unable to do so because they had no poor people and no unemployed.

There are many benefits not to close the dam. TVA has been an asset to the valley, but today it is entrenched with bureaucrats who want to build nothing but dams when dams are no longer the solution.

[Mr. Davis' prepared statement follows:]

STATEMENT OF ALFRED DAVIS

My name is Alfred Davis, from Loudon, Tennessee. I am testifying today as a representative of my family, my parents, my brother and my sister. My father is a semi-retired farmer; my brother and I, with Dad's help, own and operate Davis Tractor Co., a farm machinery dealership. My father owns two farms affected by the Tellico Project. One farm, of 104 acres, is directly on the Little Tenn. River. This farm was bought by my great-grandfather, John Davis, in 1872. It has been farmed continuously by our family—not one acre sold—until the Tellico Project. Our other farm, where my father makes his home, is located about one mile from the river. Of this farm TVA plans to take 38 acres from a total of 113, even though the waters of the lake will not touch it.

TVA first appraised Dad's property in 1968 and offered him \$298 an acre. We refused this as a ridiculously low price. TVA condemned the property without making any adjustment in price even though they admit that property values in the area were escalating rapidly. We were denied a jury trial by Federal Judge Robert Taylor in Knoxville. In 1974 we went before a three-man commission appointed by Judge Taylor to hear TVA land cases. The commission awarded us \$410 an acre, and the Sixth Circuit Court of Appeals con-

curred. Dad has been unable to replace his property. It's impossible to find any land in our area for less than \$1000 an acre. We had possession of our property until last year when TVA tore down the fences on our river farm in order to clear the river banks. This clearing and destruction of fences and buildings was done after a Cincinnati judge issued an injunction stopping the project, but TVA succeeded in getting the injunction lifted. TVA agrees that it will be impossible for Dad to replace his property with what they paid him.

As a small concession they agreed to let us continue to use the river farm; however, it would be a considerable expense to replace the fencing they have torn down. So at present Dad is renting some adjoining property. Dad is a beef cattle farmer; he has a herd of registered Polled Herefords. He is 65 but in good health, and he had hoped to be able to maintain his cattle herd in order to supplement his Social Security income. TVA will probably make this impossible. He had 217 acres; they have reduced him to 70. He can't replace his property for what TVA paid him, and he can't maintain his cattle on 70 acres.

One of the things that we are most concerned with is that of the 145 acres that TVA is taking from us, only about 35 will be flooded. The rest will be sold by TVA at some time in the future to industry or to residential developers—at a profit. Gentlemen, this is awfully hard to take. TVA comes in and says, "We're going to take your property, but in a few years we'll be selling it to somebody else at a profit." It's just not right!

I farmed with Dad until 1967 when we decided to go into the farm machinery business. Today we have several customers who rent farm land from TVA to supplement their own farming operation. These farmers are paying \$35 to \$55 an acre annually for land which TVA bought for an average of \$350 an acre. When an experienced farmer will pay this amount to rent land, and he will have the additional expense of transportation to the property, this should indicate to you that the soil along the Little T is extraordinary. In many cases TVA has already retrieved from rental income the money they invested in the property.

The Little Tennessee River is undeveloped as far as its recreational potential and industrial development is concerned. TVA first planned to dam the river in 1942. They were WISELY stopped by Congress, but everyone on the river since that time has felt TVA breathing down our necks. When industries showed interest in sites on the Little T, they were warned away by TVA. There was only one boat dock and fishing resort on the river because no one wanted to invest time and money building a business and have TVA wipe it away with flood waters.

When I was a little boy, I remember Dad saying to one of the neighbors who was going to build a new house, "You'd better build on high ground because TVA may decide to build that dam." A number of farmers who were bought out by TVA for other dams came to the fertile valley of the Little Tennessee only to be driven away there too. I remember in 1956 when neighbors were digging my grandfather's grave in the Morgantown Cemetery, Mr. I. M. Denton, a dairy farmer neighbor, raised this question: "Where can I go that I won't be bothered by TVA? I moved for Norris Dam; I moved for Douglas Dam. This time I'd rather be put in the ground myself than see my farm go under the flood waters." Mr. Denton died after TVA appraised his property but before they came back to talk about price.

TVA and some of our public officials try to give the impression that everybody in the Tellico Project area supports the project. I am sure you gentlemen realize that almost every dam project that is proposed by the federal government is supported by the business community in the project area. The same is true of the Tellico Project. Businessmen support it because they expect to reap financial benefits. However, most of the rest of our community opposed the dam when it was begun in the 1960's, and many are still opposed. Representative John Duncan held three public hearings on the Tellico Project a few months ago—one in each of the three counties affected by the dam. I attended two of those hearings, and at each one there were more people who spoke against the dam than those who spoke for it. Now if there is such overwhelming support for the Tellico Dam, why wasn't it evident at those public hearings?

This past spring Aubrey Wagner, chairman of the TVA Board, spoke to the Lenoir City Chamber of Commerce (Lenoir City is in Loudon County). Mr. Wagner said that the inspiration for the Tellico Project came from a letter written by the Superintendent of the Lenoir City Schools. The Superintendent,

the late J. Guy Buckner, wrote of the lack of jobs for graduates of the local schools. The Tellico Dam Project was supposed to provide these jobs.

However, I am sure that Mr. Buckner would be dismayed if he could learn that TVA's solution to the problem—if indeed there was a problem—would not be completed until 1977, sixteen years after he wrote the letter. And the project is not supposed to bring us any benefits for another 25 years. To pinpoint a problem in 1961 and to plan a solution which would take 41 years before any benefits would be realized is absolutely ridiculous. It is an insult to the people of Loudon County for Mr. Wagner to make such statements.

A recent issue of the Loudon County Herald with the headlines "New Industry, Expansions Set Pace for Record Economic Growth" illustrates quite well that industrial development in the Little Tennessee River Valley area is quite possible without TVA's assistance. The newspaper article says that a number of new industries will bring an added three million dollars in annual payroll to residents in the Loudon County area by next year. The new plants include Loudon Sportswear, Polson Rubber Company, Johnson City Chemical Fertilizer Plant, Vytron Plastics, and Ralston-Purina Mushroom Plant.

And I am reminded that the little town of Greenback, near where my parents grew up and which is only three miles from the banks of the Little Tennessee, recently tried to apply for federal assistance in building a town hall-community center. The town officials found that they could not qualify for federal assistance because Greenback had no poor people and no unemployed.

Gentlemen, there is much to be gained by not closing the flood gates on the Little-T. We can save 14,000 acres of the most fertile land in the world. TVA thinks that only lakes can be developed for recreation, but I believe the Little T has much to offer in its free-flowing state. I'm not an avid fisherman, but I have spent many hours floating quietly on the cool peaceful water.

You have heard a representative of the Cherokees here today. 200 years ago my ancestors were probably fighting his ancestors. Today he and I agree that the historic and archaeological sites on the Little T should be preserved.

TVA has been an asset to our valley, but the agency is now entrenched with bureaucrats who want to build dams when dams are no longer the solution.

STATEMENT OF JEAN RITCHEY

Ms. RITCHEY. I am Jean Ritchey, and I live in the Second Congressional District. And in response to Mr. Wallop's question, sir, I don't mean anything derogatory to you, but in answer to you, if you gentlemen had done your homework years ago we wouldn't have been here today, because TVA's propaganda mill runs 24 hours a day, 7 days a week. And—

Senator CULVER. You should exempt Mr. Wallop from that condemnation; the poor man has only been here 1 year. I have been there 14, and it seems like a hundred. So any blame, I think, ought to be directed at me.

Of course, I wasn't intimately involved with the Endangered Species Act and I wasn't on any committee working on it. But anything else you want to blame us for, just add it to the list because it is a popular national pastime.

Ms. RITCHEY. This is the truth.

Senator CULVER. That it is a national pastime.

Ms. RITCHEY. No, you don't search out enough.

Senator CULVER. Let's go ahead without finger pointing. Whatever you can tell us for the record without getting personalities involved, would be constructive for our purpose.

Ms. RITCHEY. Our land is being taken under false pretenses. Condemnation papers said for the building of the Tellico Dam and reservoir. We live miles from the dam, and only about 1 or 2 acres of our land will be for the reservoir, because we live high on a plain

and there will be no water. And it is morally and legally wrong to take our land in the Eminent Domain Act and sell it for a profit.

Mr. Lindsey said what they do when they get rid of the landowner, they put a number of these buildings up and sell to the highest bidder, and if not bought, they are torn down, burned, a hole dug, shove the remains in and close them over, and TVA proceeds to lease this land to the highest bidder in the area.

So TVA has gotten away from their original purpose. For example, they shouldn't be in the land rehabilitation business. All of these excess acres they have, they are renting it. And some of the land, they have gotten back the money.

We went through the process in Knoxville and we were not allowed a trial by jury. If we were criminals we would have a jury trial, but not criminals, so we have a three-man commission hearing. TVA uses comparables and finds all types of comparables to use against us, and some are remnants of farms that had been sold and things of that nature.

And we do not feel we had a justified hearing and in essence, they stole our land because it was valued by a TVA forester who said it was worth \$350 an acre. The chief witness put \$450 an acre on that land. The landowner is as endangered a species as the little fish in the river. They may not be extinct, but can't continue to farm for a living, and in many cases will be on the welfare rolls.

[Ms. Ritchey's statement follows:]

STATEMENT OF JEAN RITCHEY

Congress needs to take a long in-depth look at T.V.A.—its management and its operations—because its original purposes have become distorted. The fact that T.V.A. is not accountable for its actions to any superior is in my opinion unwise. Its accountability to Congress seems to be only indirect. Aside from asking Congress for money for its projects T.V.A. can and does pretty much as it pleases. Their political clout is enormous as they seem to have little trouble getting their way on any matter.

As you know T.V.A. is taking thousands of acres of land that will not be covered with water in this Tellico Project. On our property only one or two acres—three at the most will be effected by the reservoir back water on Fork Creek that flows along the southeastern side of our place, yet they are attempting to take all of our farm which consists of 119 acres. We tried to find out what they wanted with the bulk of our land; they would not tell us so we did not allow them to appraise us above the water line. They first came in March 1969; after a couple of visits in which we told them they could appraise to the water line but the remainder of our land was not for sale they did not return for five years, in the spring of 1974. We told the new appraisers the same thing; they told us they didn't know what T.V.A. wanted with the extra land. After several visits to our place by these same men during the summer we always said no to the matter of appraisal by them of our whole place. Ben told them he would give them the land effected by the back water or if they would find us a place equal to ours he would go and no money would have to be involved. They replied they couldn't do that so he told them he couldn't afford to be treated as his parents and neighbors had been treated money-wise because they were not receiving enough for their places to replace themselves.

On December 16, 1974 they slapped a condemnation on us stating they were taking us for the building and maintenance of the Tellico Dam and reservoir. We live miles from the dam and so that excluded us from that part of the condemnation and as we were on a fringe area of the project (the land that joins us on the northwest side of us is privately owned) so the back water of Fork

Creek was the reservoir-affected part or the one to three acres that joined the creek.

On February 25 and March 25, 1975 they forcibly appraised our property, Burbage, their chief land acquisition lawyer, two T.V.A. appraisers, three so-called independent appraisers hired by T.V.A. and several U.S. marshals. Burbage, the lawyer, asked my husband for and was allowed to ride over the land as he had a bad hip he said—so Ben rode with him, called his attention to our woodland and he told Ben he would send a T.V.A. forrester to cruise the trees. Mr. Trundel, the forrester, came March 25, 1975. He took more time to do the woods and trees than the first group who whisked themselves over the place in a couple of hours and didn't know what was growing on the land, which was a couple of fields of winter wheat. They made a big to-do over a natural pond and a few wild raspberry vines growing near our house, and we could see what was ahead for us by the actions.

On May 18 and 19, 1976 we were ordered to appear in Knoxville before a three man commission appointed by Judge Robert Taylor. Judge Taylor does not permit cases like ours to have a trial by jury where T.V.A. is the Plaintiff. He was not present at our trial; the three man commission (consisting of a real estate agent and a lawyer both of Knoxville and an elderly retired businessman who live in Jefferson County) conducted the proceedings. None of these men understand farming or make a living farming.

If ever there was a Kangaroo court that was it. T.V.A.'s chief appraiser and two of the independents they had hired proceeded to lower the amount of money that had been entered on the condemnation papers. T.V.A. attacked our appraiser's credibility, questioned his license, had whole books of pictures of places they had picked as comparable sales and spent very little time on the merits of our place. They made derogatory remarks about our place and treated us in a manner as to make us feel ignorant and insignificant—like serfs or peasants. They called us incompetent because we had replaced a worn out pump for our well in the fall before we were condemned; said we did this in order to obtain more money for our place from them. We did not buy the pump for their use by any stretch of the imagination but the fact we had to have drinking water for ourselves and our cattle was lost on them. We are not the only ones caught in this miscarriage of justice. We have several friends and neighbors who have received similar treatment.

The commission raised the amount of the original offered price but we still were not able to go on the market and buy a place equal to ours for their amount, either. We sent the whole she-bang back for Judge Taylor to review and during this period of time in August of 1975 we received a letter stating our phone and electric service was to be terminated and we had better remove ourselves from the premises by December 1. During August our creek-bank and the creek area in our neighborhood was clear-cut by T.V.A. and we watched some of their employees cut, drag, and heap the huge trees in piles and after work hours these same T.V.A. employees with outside help hauled load after load of these huge logs off to be sold, and remember T.V.A. wouldn't allow us to cut any of our timber said it could not be separated from the land as a crop is and for us not to touch it, they even counted the stumps where we had cut fire wood. (This is just one example of poaching that took place by T.V.A. employees.) Looting and stealing was a common practice by employees of T.V.A. They worked the day shift and poached after hours.

In October Judge Taylor sends his verdict; he concurs with the commission. So on December 1 we go to see Mr. Bill Jenkins, T.V.A. Board member and outline our situation to him—we want to be replaced as good as we are now situated 119 acres of good, productive row crop tractor land, an eight room livable house, a deep well and two barns. Lynn Seiber and Herb Sanger were present at this meeting. They suggested investing the money they had offered for growth to get more to buy later—they suggested going to some other area for relocation because the farm land was too expensive in East Tennessee. Seiber also said we would not be getting any more money because we had already been through the court. He said we were paying taxes on land that wasn't ours. We have continued to pay our land taxes in Loudon County even though T.V.A. replaced our deed and tried to get us removed from the tax rolls. We have not taken any of T.V.A.'s money and we pay more taxes to the County than T.V.A. would on the same land.

Jenkins agreed to send a man to help us find a place to go. This person toured Five counties during December trying to locate a place for the price range they had offered and he became the laughing stock of all the real estate dealers; they told him if he found any land at that price they would pay him a commission for the find.

We went before Judge Taylor's court in early November 1976 to try and get an injunction to keep T.V.A. from terminating our phone and electrical service on December 1. He said we could stay and have service until January 1, 1977. December 1 came and December 31 came. No change in service. In fact the phone company buried a new cable right by our house and we have had uninterrupted service. The electricity was a little more involved as the local utility buys their electricity from T.V.A. but we finally got that worked out satisfactorily also.

That is where we stand today. We have to earn a living—we can't afford to take time off while all of this rigamarow goes on—so we are making a crop as usual and old Fork Creek continues its friendly flow over the rocks and around the bends to the beautiful Little T.

For all of this experience—mostly unpleasant and some of it down right unjust—we just can't see ourselves and our place becoming a sacrifice just to please some bureaucratic agency! Where are our civil rights? The flagrant use of eminent domain to obtain land to eventually be resold to pay for this foolish project is outrageous and morally wrong in our opinion.

Last summer while a group was digging along the river to determine what kind of civilization was there hundreds of years ago a few hundred yards away T.V.A. was tearing down and burying a part of the present civilization.

When a landowner is removed from his property his house and buildings are sold to the highest bidder, if not sold they are torn down & burned, a huge hole is dug and remains pushed in and covered over with dirt and all traces of the former owner are wiped away forever.

T.V.A. now owns a block of several thousand acres of land, they are land brokers now—leasing from one to five years parcels of this land. Some of it they have owned for several years and lease payments have already cleared or paid them back the original price they paid.

If the TVA offer is accepted and not re-invested within a certain length of time in like property, then the Internal Revenue Dept. is looking for the capital gains tax and when they dip in for that we are reduced financially that much more.

So you see the land owner is in a way as endangered as the small fish in the river; they won't be made extinct maybe, but they will be so bent financially they can't continue to farm for a living and in many cases they have been reduced to a house and lot or the welfare rolls.

T.V.A.'s propaganda mill runs 24 hours a day—7 days a week. Don't be taken in or misguided by their untruths. Question them—search for the truth—find out for yourselves what is going on—don't take their tarnished word—delve deep for the facts before you fund their projects. Please! When they hang up their sign "Building a better Environment"—make sure they are not destroying our heritage. Remember only God can make a river as beautiful as the Little T. Somehow plastic-concrete and cess pool reservoirs just don't come anywhere near the loveliness of trees, birds, animals, clean flowing water of the original or the real thing.

We have plenty of industrial parks for jobs both dry land and river parks; just about every county and town has one or more.

TVA 3-man Commission :

102 acres cleared land at \$800-----	\$81, 600
17 acres woodland at \$600-----	10, 200
House -----	10, 000
Barn No. 1-----	5, 000
Barn No. 2-----	3, 500
Small building-----	400
Well, etc-----	3, 000
Total -----	113, 700

TVA—Trundel (Forrester) :

Woodland was cruised on March 25, 1975:		<i>Board feet</i>
Lumber		128, 000
Red oak		65, 000
White oak		23, 000
Hickory		18, 000
Pine		20, 000
Cherry		310

NOTE.—85 percent of trees or 106,000 ft. in hard wood. December 1974 market value for timber was \$6,150 or \$350 an acre.

TVA—Phillips:

44 acres land at \$700	\$30, 800
58 acres land at \$600	34, 800
17 acres land at \$450	7, 650

Total	73, 250
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House	6, 000
Barn No. 1	2, 000
Barn No. 2	2, 000
Small building	200
Well, etc	1, 100

Total	11, 300
-------------	---------

Total, Phillips	84, 550
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TVA—William Curtis:**Buildings:**

House	\$5, 000
Barn No. 1	2, 000
Barn No. 2	2, 300
Small building	200
Well, etc	2, 000

Total	11, 500
-------------	---------

104 acres cleared (per acre)	650
Woods (per acre)	350
Land	72, 850

Total	84, 350
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TVA—Dewey Lothrop:

Buildings: House, 2 barns, small building, and well, etc	17, 200
Land	71, 400

Total	88, 600
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Cleared and wooded at \$600 per acre	71, 400
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Mr. PLATER. Dr. Jefferson Chapman, who has been in the Tellico and Little Tennessee River valley excavating.

STATEMENT OF JEFFERSON CHAPMAN

Dr. CHAPMAN. Members of the committee, I am here as a concerned citizen and as a professional archaeologist. I wish to reaffirm my credentials. I have directed field work in the Tellico reservoir since 1969. I have been a field supervisor for the Tellico Archaeological project since 1973, and the principal investigator for a National Geographic Society grant in the fall of 1976, and for two National Park Service contracts in 1977.

My professional qualifications are sound. Finally, let me point out that the actual field time Dr. Gerald Schroedl, Mr. Richard Polhemus, and I have spent directing excavations in the proposed Tellico reservoir can be numbered for each of us in years. In addition, we have each conducted and directed considerable analysis. As a result, we can speak with more authority than anyone else concerning the archeological resources.

You have received a written statement prepared by Dr. Schroedl and myself. I do not intend to repeat it, but to make only a few points.

There are well over 200 archaeological sites in the proposed Tellico reservoir. Systematic surveys conducted at the end of the project in the fall of 1976 and in the spring of 1977, recorded 187 previously unrecorded sites. Seventy-six of the sites located in the spring have been determined eligible for nomination to the National Register of Historic Places, and these determinations have been submitted to the National Park Service; 57 sites from the fall survey are eligible.

All of the sites listed in our submitted statement are eligible for nomination, but only the Tellico Blockhouse, Fort Loudoun, and Chota/Tanasi have been nominated to date.

The sites in the reservoir area span over 10,000 years, and together they represent the material remains of Indian cultural adaptations to the valley and successive life ways. As we discuss in our statement, the sites of two cultural periods are especially unique.

Foremost are the Overhill Cherokee towns. The role of these towns in the history of the southern colonial frontier and as a homeland to living Indian groups is of great historical importance. With the exception of Great Tellico, all of these towns are in the lower Little Tennessee River valley.

Similarly unique are the number of deeply buried Indian sites dating between 7,000 and 9,500 years ago that have been identified within the proposed Tellico reservoir. Although a few sites of this type exist elsewhere in the eastern United States, nowhere have so many been identified in a single valley. This frequency affords an opportunity to conduct studies leading to the reconstruction of early settlement systems—an opportunity unprecedented in the eastern United States.

If the committee desires, I have several slides that illustrate these resources.

Dr. Schroedl and I are the first to acknowledge that the Tennessee Valley Authority and the National Park Service have spent considerable sums of money for archaeological investigations and that large amounts of data have been recovered, certainly more than preceding reservoir projects. However, the lack of an overall research design and survey at the beginning of the project, and the failure by TVA to adequately fund one when proposed in 1975, have hindered mitigation of the reservoir impact.

The research that has been conducted to date has told us a lot about the Indian occupations in the valley, but it has also showed us the quality and quantity of the cultural resources that are there. Dr. Schroedl and I estimate that of the sites investigated to date, no more than 5 percent of the total area of most of them have been excavated.

It is our opinion that a larger sample is necessary to make the kinds of interpretations archaeology requires in the late 1970's.

What Dr. Schroedl and I wish to convey to the committee is two-fold: First, the lower Little Tennessee River valley is extremely rich in cultural resources, and we question if, under present Federal guidelines, the destruction of these resources has been sufficiently mitigated.

Second, if, as the recent GAO study suggests, an examination of the alternative uses of the project area is undertaken, we strongly urge that the preservation of the cultural resources and the development of select archaeological sites for public education and enrichment be considered in the total plan. The preservation of these sites is compatible with the spirit of all Federal legislation and would save an invaluable area for future archaeological research.

[Dr. Chapman's prepared statement follows:]

A STATEMENT CONCERNING THE ARCHAEOLOGICAL RESOURCES
IN THE PROPOSED TELlico RESERVOIR

Jefferson Chapman, PhD
Gerald F. Schroedl, PhD

Research Assistant Professors
Tellico Archaeological Project

To date, over 200 archaeological sites have been recorded within the proposed Tellico Reservoir pool area. These sites range from permanent villages covering 30-40 acres, to small, transient camps identified from a few artifact fragments. Most sites occur in the top three feet of soil on the river bottoms. The upper portions of some of the sites have been disturbed by plowing which has exposed cultural material such as arrowheads and pottery fragments. Below the plow disturbed surface, however, are the undisturbed remains of several millennia of Indian occupation. Recent excavations have demonstrated that some Indian sites are buried as much as fifteen feet below ground surface and are as much as 9500 years old.

Archaeological investigations have been conducted in the proposed Tellico Reservoir since 1967. Funding has been provided by the Tennessee Valley Authority and the National Park Service with a small grant from the National Geographic Society. Some additional money and equipment have been supplied by concerned corporations and individuals in the Knoxville area. These expenditures have been in mitigation of the adverse effects of the reservoir and in recognition of the significant archaeological resources. Although the total expenditures by the Tennessee Valley Authority and the National Park Service are in excess of the one per centum authorized by Public Law 93-291, it is our opinion that the resources are of such significance and quantity that these expenditures are insufficient to mitigate their destruction.

A summary of the sites and the excavations is presented below. It is important to realize that in most cases less than 5% of each of these sites were investigated; only the Anglo-American sites have been totally excavated. The following are only the major sites in the valley that have had archaeological excavations conducted on them. The pressures of time and money have prevented the excavations of scores of other sites, as well as prevented more extensive investigations of these major sites.

ANGLO-AMERICAN SITES

Virginia Fort-1756; excavated 1976; now destroyed
 Ft. Loudoun-1756 to 1760; excavated 1975-1976; now buried for
 above pool restoration
 Tellico Blockhouse-1794 to 1807; excavated 1973-1974; stabilized
 and parade ground raised above pool level

OVERHILL CHEROKEE TOWNS (c. 1730-1805) (ethnohistorically described villages, usually comprising 30-70 acres each)

Halfway Town - will not be flooded
 Citico - partially excavated in 1957; site has been badly vandalized;
 site will be in erosion zone (807-813 ft AMSL) of reservoir
 Chota/Tanasi - partially excavated 1967-1974; townhouse area now
 elevated for restoration
 Toqua - partially excavated 1975-1977
 Tomotley - partially excavated 1976
 Tuskegee - sampled 1975-1976
 Mialoquo - partially excavated 1976-1977

LATE MISSISSIPPIAN SITES (c. 1300-1550 A.D.) (permanent palisaded villages and earthen mounds; sites generally comprise 5-10 acres)

Citico - partially excavated 1967
 Toqua - partially excavated 1975-1977

EARLY MISSISSIPPIAN SITES (c. 900-1300 A.D.) (large villages and earthen mounds; sites generally comprise 5-10 acres)

Mayfield II - partially excavated 1967
 Martin Farm - partially excavated 1968, 1975
 Bat Creek - partially excavated 1971

MIDDLE WOODLAND SITES (c. 300-700 A.D.) (semi-permanent villages, hunting and gathering, some cultivation of domesticated plants, trade interaction with much of eastern U.S.)

Icehouse Bottom - partially excavated 1969-1971, 1977; c. 2-3 acres

EARLY WOODLAND SITES (c. 500 B.C. - 300 A.D.) (semi-permanent villages, hunting and gathering, first pottery; sites generally comprise 2-3 acres)

Bacon Bend - partially excavated 1967

Patrick site - partially excavated 1972-1973

Rose Island - partially excavated 1973

Calloway Island - partially excavated 1976

LATE ARCHAIC SITES (c. 2500 B.C. - 1000 B.C.) (base camps and special purpose camps, hunters and gatherers)

Iddins site - partially excavated 1976-1977; c. one acre

Late Archaic components sampled at Patrick, Icehouse Bottom, and Harrison Branch sites

MIDDLE TO EARLY ARCHAIC SITES (c. 7500 B.C. - 4500 B.C.) (base camps and special purpose camps, hunters and gatherers; sites comprise 3-6 acres and are deeply buried, with occupation layer stacked upon occupation layer)

Rose Island - partially excavated 1973-1974

Thirty Acre Island - partially excavated 1975

Icehouse Bottom - partially excavated 1975

Bacon Farm - partially excavated 1976

Calloway Island - partially excavated 1976

Howard site - partially excavated 1976

Archaeological sites are non-renewable resources--once a site is destroyed it is gone forever; it cannot be transplanted like plants, animals, or fish. Archaeological sites are being destroyed at an alarming rate by roads, reservoirs, industrial sites, urban expansion, and vandalism. In many areas in a few years there may be no more archaeological sites.

The lower Little Tennessee River valley is one of the richest valleys archaeologically in the southeast. The archaeological sites there comprise the material remains of cultural adaptation by the American Indian to a valley and its environs that span over 10,000 years.

The sites that were occupied at any one time within this valley were part of a settlement system: each site articulated with the other sites in the system and with the environment to produce a cultural pattern. The river valley comprising the area of the Tellico Reservoir is a discrete enough area that one could expect prehistoric and Overhill Cherokee settlement and subsistence patterns to focus within that valley and to develop their own distinct adaptations. In addition to the study of patterns and related activities for various cultural periods afforded by all of the sites identified in the valley, there is an equally important opportunity to observe cultural processes. Culture change and adaptation are manifest in the artifacts as well as the shifts in settlement. The numerous sites dating from 8000 B.C. through the 18th century are laboratories for processual studies.

Unique among the archaeological sites are the towns of the Overhill Cherokee. The role of these towns in the history of the southern colonial frontier and the political, missionary, and trading activities in which they were involved are extremely important. The sites are significant for the study of Cherokee culture change and acculturation with regard to Anglo-American contact and frontier expansion. These sites are to be found only in the lower Little Tennessee River valley.

Similarly unique are the number of deeply buried Indian sites dating between 7000 and 9500 years ago that have been identified within the proposed Tellico Reservoir. Although a few sites of this type exist elsewhere in the eastern United States, nowhere has the frequency within a single valley been observed to be so great. Similar sites may have been present in other river valleys in the southeast, but many of these valleys have been inundated.

The Overhill Cherokee and the prehistoric sites within the proposed Tellico Reservoir comprise an important part of our cultural heritage.

In any reappraisal of the costs and benefits of the Tellico Reservoir, we believe that the cultural resources within that reservoir must be reevaluated. It is our opinion that the valley, and the Indian sites that represent millennia of Indian adaptation to that valley, are worthy of preservation. The preservation of these sites would certainly be in accordance with the Historic Preservation Act of 1966 which states "...That the historical and cultural foundations of the nation should be preserved as a living part of our community life and to give a sense of orientation to the American people..."

The preservation, restoration, and maintenance by the Tennessee Valley Authority of the cultural resources in the valley would be in the spirit of Executive Order 11593, which states "...Agencies... shall (1) administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, (2) initiate measures necessary to direct their policies, plans, and programs in such a way that federally owned sites, structures and objects of historical, architectural or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the people..." (underlining ours).

In this interim period, as the fate of the valley and the archaeological resources is being decided, vandalism and the uncontrolled digging by collectors are taking place on a number of the late prehistoric and historic sites. It is our opinion that a concerted effort should be made by the Tennessee Valley Authority to protect these sites. To permit the continued destruction of the cultural resources by individuals,

in some cases reported and known to TVA, represents in our opinion negligence of the responsibility that agency has concerning the protection and preservation of prehistoric and historic sites within its jurisdiction.

Publications and Manuscripts Relating to the Archaeological Resources
in the Proposed Tellico Reservoir

Chapman, Jefferson

- 1973 The Icehouse Bottom site, 40 MR 23. Report of Investigations. No. 13, Department of Anthropology, University of Tennessee, Knoxville.
- 1975 The Rose Island site and the bifurcate point tradition. Report of Investigations, No. 14, Department of Anthropology, University of Tennessee, Knoxville.
- 1976 The Archaic period in the lower Little Tennessee River valley: the radiocarbon dates. Tennessee Anthropologist I (1):1-12.
- 1976 Early Archaic site location and excavation in the Little Tennessee River valley: backhoes and trowels. Southeastern Archaeological Conference, Bulletin 19, pp. 31-36.
- 1977 Archaic period research in the lower Little Tennessee River valley - 1975: Icehouse Bottom, Harrison Branch, Thirty Acre Island, Calloway Island. Draft copy submitted to National Park Service in accordance with NPS Contracts 5000-5-0214 and 5000-6-0316.

Chapman, Jefferson and James Adovasio

- n.d. Textile and basketry impressions from Icehouse Bottom, Tennessee. In press, American Antiquity.

Gleeson, Paul F. (Editor)

- 1970 Archaeological investigations in the Tellico Reservoir, interim report, 1969. Report of Investigations, No. 8, Department of Anthropology, University of Tennessee, Knoxville.
- 1971 Archaeological investigations in the Tellico Reservoir, interim report, 1970. Report of Investigations, No. 9, Department of Anthropology, University of Tennessee, Knoxville.

Kelly, Paul

- 1961 Historic Fort Loudoun. Fort Loudoun Association, Vonore.

Salo, Lawr V. (Editor)

- 1969 Archaeological investigations in the Tellico Reservoir, Tennessee, 1967-1968: an interim report. Department of Anthropology, University of Tennessee, Knoxville.

Schroedl, Gerald F.

- 1975 Archaeological investigations at the Harrison Branch and Bat Creek sites. Report of Investigations, No. 10, Department of Anthropology, University of Tennessee, Knoxville.

Schroedl, Gerald F., Jefferson Chapman, and Richard Polhemus

- 1975 A comprehensive research design for archaeological investigations in the Tellico Reservoir - 1975 to 1980. Recommendations submitted to Dr. Alfred K. Guthe, the Tennessee Valley Authority, and the National Park Service. On file, Frank H. McClung Museum, University of Tennessee, Knoxville.

Thomas, Cyrus

- 1894 Report of the mound explorations of the Bureau of Ethnology. Twelfth Annual Report of the Bureau of Ethnology.

Williams, Samuel C. (Editor)

- 1927 Lieut. Henry Timberlake's memoirs. The Watauga Press, Johnson City.
- 1928 Early travels in the Tennessee country, 1540-1800. The Watauga Press, Johnson City.

Mr. PLATER. We have finally Mr. Ben Bridges, who is the attorney for the eastern Cherokee Indians in North Carolina, adjacent to the project area.

STATEMENT OF BEN BRIDGES

Mr. BRIDGES. Mr. Chairman, I am B. M. Bridges. I practice law in Sylva, N.C. Due to a series of tragic events, some of the tribal officials who had planned to be here were not able.

I simply would like to make two points known concerning the feelings of the Cherokee people. First, the eastern band of Cherokee Indians opposes the impoundment on this dam project. And second, that the Cherokees support the development of alternative plans, some of which were discussed earlier today with the committee.

I would like to read into the record one clause from a resolution adopted by the Cherokee Tribal Council earlier this year:

Now therefore be it *Resolved* by the Tribal Council with a quorum assembled, That Tribal officials be directed to publicly oppose the completion of the Tellico project, to file formal objection to the project with Congress, and to request the support and assistance of the Department of the Interior in opposing this project and any legislation exempting it from present environmental laws.

And in addition, there is a case pending before the Supreme Court and we are in the process of doing that.

At the time the Tribal Council passed this resolution, the chairman of the Tribal Council issued a substatement, and let me read a few of his remarks:

Mr. Jonathan Taylor, who is the chairman of the Tribal Council stated earlier this year:

This land is sacred to the Cherokee people. We object to the bodies of our ancestors and the site of towns and burial grounds being covered under any water. The Cherokees understand the importance of preserving this little fish because we were very nearly extinct ourselves at one time.

Thank you.

[The resolution follows:]

Cherokee Council House
Cherokee, N.C.

Date APR 7 1977

PASSED

Resolution No. **384**

- WHEREAS, the Tennessee Valley Authority is constructing a dam in what is known as the Tellico Project which, if completed, would flood thousands of acres in the lower valley of the Little Tennessee River in eastern Tennessee, and
- WHEREAS, within this area are located a number of sites of great historical interest to the Cherokee people, including sites of former Indian towns and villages, including Chota, the former "capital" of the Cherokee Nation as well as burial grounds for our ancestors, and
- WHEREAS, the United States Court has enjoined further construction on the Tellico Project because it violates the Endangered Species Act, and
- WHEREAS, the Tennessee Valley Authority is now seeking a special exemption for this project from the Endangered Species Act through the United States Congress, and
- WHEREAS, the historical protection and preservation of the heritage of the Cherokee people will be irretrievably damaged if the Tellico Project is completed, and
- WHEREAS, this Tribe has already recognized the importance of historical and sacred sites in Tennessee by undertaking a commemoration of the Treaty Grounds of Long Island on the Holston River in Kingsport, Tennessee, and
- WHEREAS this Council supports the establishment of proper commemorations at historic sites in Tennessee and elsewhere to preserve the heritage and accomplishments of the Cherokee people,

Now Therefore Be It Resolved by the Tribal Council with a quorum assembled, that Tribal officials be directed to publicly oppose the completion of the Tellico Project, to file formal objection to the project with Congress, and to request the support and assistance of the Department of the Interior in opposing this project and any legislation exempting it from present environmental laws.

Senator CULVER. I want to thank you, Professor Plater, and your panel. This has been valuable testimony for our consideration, and we will be reviewing all of your statements which have been submitted.

I wonder if you might provide us for the record substantiation and more detailed documentation associated with some of the charges you have made concerning alleged bad faith on the part of TVA officials in compliance with the Endangered Species Act and what proof you have to support those charges? Please submit the appropriate documents for the record in that regard.

I would like to have the opportunity to submit to various panelists who have spoken here more specific questions. Unfortunately, we are supposed to adjourn at 12:30, and we do not have the time to ask extensive questions now.

We will be getting back to you for the record.

Mr. PLATER. We would be pleased, sir, to respond to whatever written questions you submit. (See p. 863.)

Senator CULVER. I appreciate it very much. I think you have done an excellent job, and it has been useful to us.

Mr. PLATER. I submit for the record, sir, a print of the fish.

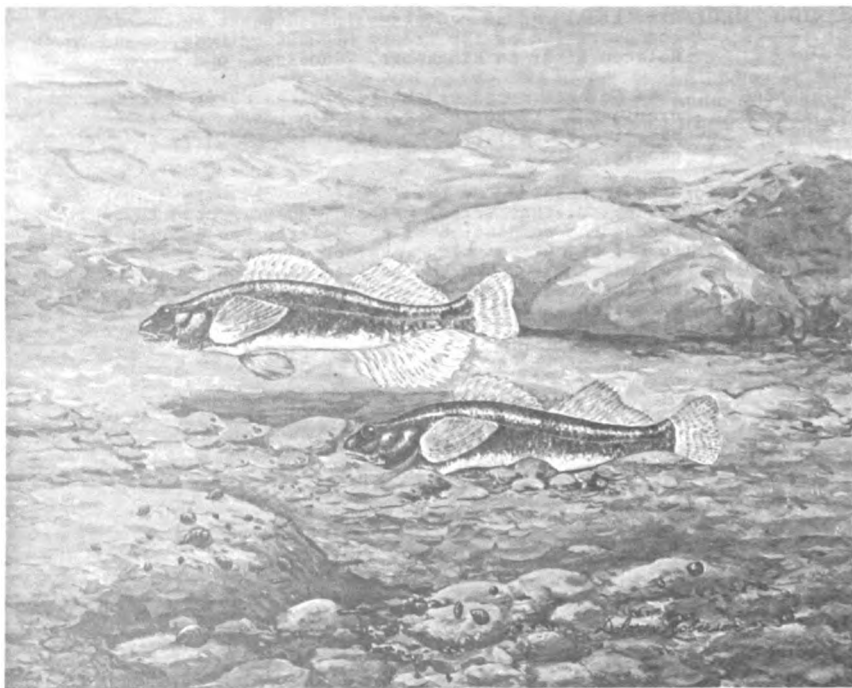
Senator CULVER. Without objection, so ordered.

You will put yourself out of business if you resolve this problem.

Mr. PLATER. That is a factor we are willing to face if it arises.

Senator CULVER. Thank you.

[A picture of the snail darter, supplied by Mr. Plater, follows:]



Snail Darter
Percina tanasi
ENDANGERED SPECIES

9/1/2000
Dobson Robinson

Senator CULVER. Our next witness is Mr. Charles Hall. It is a pleasure to welcome you here this morning. I look forward to hearing your remarks.

**STATEMENTS OF CHARLES HALL, MAYOR, TELlico PLAINS, TENN.;
AND ROBERT J. PENNINGTON, CHAIRMAN, THE LITTLE TENNESSEE RIVER PORT AUTHORITY**

Mayor HALL. Thank you, Mr. Chairman. I appreciate your hearing us.

I have with me Mr. Bob Pennington, who is chairman of the Little Tennessee Valley Port Authority, and Monroe County attorney living in Madisonville, Tenn.

I would like for my statement to be filed, and Mr. Pennington's also.

Senator CULVER. Without objection, so ordered. [See pp. 243 and 252.]

Mayor HALL. I would like to make about a 2-minute statement. At the end of that time if you have questions for us, Senator, we would be pleased to answer those for you.

Monroe County is the largest county in the area, but a small county in population, having approximately 25,000 endangered species. That is the citizens of our county. I will explain why. Per capita income is only \$3,900. We have had an outward migration of 1,878 of our young people between 20 and 29 years of age from 1960 to 1970. People who are the lifeblood of Monroe County are leaving. The median age has gone from 22.8 in 1950 to 27.8 in 1970. You see, our people are leaving.

We have a rate of approximately 12 percent unemployed in Monroe County. Just last week, Alcoa, some 30 miles away from this project, opened up their offices to accept applications for a very few meager jobs, and there were 6,000 applicants the first day. We do need some jobs in that area.

The Tellico project has been estimated to produce 6,000 new jobs. This is not our estimate, this is from the various research organizations that does this type of thing. Apparently they do know what they are doing. There are presently 44,000 waterfront jobs on the TVA waterfronts. There is an additional 76,000 jobs in backup grocery stores, et cetera, as a result of those 44,000 jobs.

So, you see, the people of Monroe County do want this project. They want it to the extent that presently 90 percent of the people of the Tellico area support the Tellico project. Back in the early 1960's, 64 percent of the people who resided in the Tennessee Valley in the Tellico area who would lose their farmlands and their homes supported the project.

I sat in the back and looked through the hearings of the subcommittee on appropriations for 1966 Public Works appropriations. I picked out nearly 6,000 acres of lands that were listed here where their owners had written to the Congress. The letters are a public record here, and they are support from people who lived in the valley who wanted to see the project built. So this has been going on a long time; this is not new.

The people there do support the Tellico project. The flood control is evident. Chattanooga would have been spared \$15 million in damages in 1973 alone had the project been completed before that time.

We all know what happens when you build a dam, there is recreational potential.

Laugh if you may, but it is no laughing matter in Monroe County. I have lived there my entire life. I am 53 years old. I have seen the construction of the first one. I was there for all of it. I have seen every one of them all the way down, and I know the development that has come about when these dams have been constructed and when they have been filled and their waterways opened. We would like to see this one completed.

We hear about the endangered species, but we feel our people are in danger. But the darter is alive in the Hiwassee River; there is no argument. They live in other streams, not just the Little Tennessee. We also understand there are 10,000 new species each year. You people are going to be sitting here as long as you are in Congress hearing these same cases because these 10,000, if not already cataloged, are going to be endangered and rare, also.

So this is the future. The river environment is there. No one made any attempt to salvage any of the remains, archaeological or otherwise, until the Tellico project was started. And then everyone wanted in on the act.

When you say benefit-cost analysis, what is the benefit-cost analysis for the unemployed people of our county? Is there any return paid because they were unable to find a job?

I appreciate you people, and I hope I made it in 2 minutes. And we will answer the questions you might have.

Senator CULVER. If the General Accounting Office report indicates that a nonreservoir development plan for this Tellico project would, in fact, potentially produce more tourism, more jobs, more area revenues than the dam as originally planned, would you still support the dam project?

Mayor HALL. I certainly would. Where were these people when we were working to get the dam? These things have never happened.

Senator CULVER. What you are saying, is that if a study were to suggest an alternative approach of development that would have your community, you would still be unimpressed with that study? Are you prepared now to rule out such project modifications? Would you be open-minded about it?

Mayor HALL. I certainly would. I was openminded when this started.

Senator CULVER. I didn't intend to raise a hostile question. I just wanted to ascertain how you feel about it.

Mayor HALL. This started about 1963, and none of this had been done that is proposed now.

Senator CULVER. A lot of things have changed since 1963.

Mayor HALL. The Tennessee Valley has.

Senator CULVER. Senator Wallop?

Senator WALLOP. Nothing.

Senator CULVER. I want to thank you both very much.

We may have additional questions, Mr. Mayor. And I do appreciate your cooperation in making the statement brief, and I will look carefully at your full record statement.

Mayor HALL. Thank you. I would have enjoyed 30 minutes or an hour of it.

[The prepared statements of Mr. Hall and Mr. Pennington follow:]

STATEMENT BY CHARLES HALL
BEFORE THE SUB-COMMITTEE ON
RESOURCE PROTECTION OF THE
SENATE ENVIRONMENT AND PUBLIC
WORKS COMMITTEE

Mr. Chairman, we very much appreciate the opportunity to present a statement to this committee in support of the completion and use of the Tellico Dam and Reservoir project being constructed by the Tennessee Valley Authority in the counties of Blount, Loudon and Monroe in east Tennessee.

The project is virtually complete, but TVA is prevented from filling the reservoir by a Federal court ruling under the Endangered Species Act because a very small fish call the snail darter might possibly be endangered. The vast majority of people in the Tellico area are distressed by the delay and want the project completed and used.

We would like to review very quickly several points which we feel are worthy of consideration by this committee and the Congress.

Support for the Tellico Project

Some persons would lead you to believe that the majority of people in our area are not in favor of the Tellico project. This is absolutely false. Every public opinion poll (see attached) that I am aware of has indicated support for the project. The most recent is Congressman John Duncan's survey of his district earlier this year which showed that 87 percent of the over 14,000 persons responding favored completion of the Tellico project (12,551 for and 1,825 against). In our three-county Tellico area, 90 percent of the people favor the Tellico project (3,034 for and 344 against). The most recent session of the Tennessee Legislature passed three resolutions urging the Congress to permit completion of the Tellico project, one by a vote of

96 to 0 in the House and 29 to 2 in the Senate. Many organizations, Clubs, associations and local governments have passed resolutions in support of the project.

Proposed Alternative

Tellico project opponents have said that the overall goal of their alternative plan for the Little Tennessee River Valley is to "preserve a unique and economically valuable region." Their plan calls for tearing down the Tellico Dam, returning the land to agricultural use, providing some river-based recreation, reconstructing some archaeological and historical sites, and, of course, the snail darter.

While there may be some differences in emphasis, their plan for recreation and archaeological and historical sites offers nothing unique that will not be amply and carefully developed, preserved, and managed by carrying out the plans associated with the Tellico project. Thus, we are really talking about three issues: (1) the river environment, (2) returning the land to agricultural use, and (3) the snail darter. The snail darter issue is being discussed in these hearings by others. I believe it is the only germane issue to be resolved at this time. I'm not sure, however, how important it really is since I have heard it said by Tellico opponents that they really don't care about the snail darter; but it is a useful tool to stop the Tellico project. Wrapped in a snail darter cloak, they are trying to reintroduce issues about the project which have already been extensively debated and resolved both by the Congress and the courts.

We in the Tellico area have lived with the river and an agrarian and extractive export economy for a long time. Neither has made our area

a "unique and economically valuable region." Our economy is typical of much of Appalachia, characterized by low incomes, outmigration of youth, and lack of opportunity generally. The relative underdevelopment of this area has resulted in an insufficient number of jobs for our people. Lack of job opportunities has created chronic situations where during the period 1950 to 1970, almost 20,000 persons left the three-county Tellico area (present population 121,300). Significantly, about three-fourths of those persons were our younger, potentially more productive people in the 15 to 29 age group.

In all the debate over the impact of the Tellico project on the snail darter, one endangered species in our area has been completely forgotten about--the human resource. There are currently over 3,500 people unemployed in the three-county area. The unemployment rate in my home county of Monroe is now over 12 percent, which is the second highest in Tennessee. In addition to an immediate need for jobs, new jobs must be made available for about 10,000 people in the next 20 years.

Historically, the jobs available have been low wage and offer few opportunities for advancement. The obvious choice for those holding or seeking a job is to move away or to forego reasonable opportunities for job selection. Just last week, for the first time in three years, the Aluminum Company of America announced that although it did not expect to increase its workforce substantially, it would begin accepting job applications at its plants in Alcoa, Tennessee, which is just 30 minutes from the Tellico project area. Nearly 6,000 persons applied the first day. Is this the "unique and economically valuable" area Tellico opponents talk about? Obviously, from a job opportunities viewpoint,

it is not. They romanticize about the pastoral past, the river as it was, not as it is, and the return to agrarian practices. That world is gone!

The Best Alternative

Unfortunately, there are no "quick fixes" to the economic situation which has existed in the Tellico area for many years. Thus, a long-term plan which will carefully implement and manage the development of the resources of the area to bring it up to "running speed" with the Nation is the best plan. The Tellico project itself and the development of a major industrial complex on its shorelands is a significant strategy in such a plan. Monroe County presently has under consideration the first phase of this plan, a 350-acre industrial park adjacent to the public port facility site prepared by TVA for use when the reservoir is filled. Funds from both the Economic Development Administration and Appalachian Regional Commission have been pledged to develop this site, which will be made available by TVA. Loudon and Monroe Counties have cooperated to build and operate a \$4 million water plant near the site in anticipation of the new investment opportunities expected to accompany this development and other area opportunities resulting from the Tellico project. We expect about 1,000 jobs to be created by full development of the industrial park. In contrast, Tellico opponents say that if they can persuade Congress to tear down the Tellico dam and use "90 percent of the available acreage for agriculture, by double cropping, 350 jobs might be created." Full development of the Tellico's waterfront industrial potential will provide the types of job opportunities that we desperately need to strengthen the overall economy of the Tellico area and to preserve the

dignity of our most important resource--people.

The Future

The Tellico project is the future. It is a good project. This project has been thoroughly analyzed, debated, and funded every year since 1966 by the Congress; and to ignore this fact is an insult to the Nation's taxpayers, to the careful analyses performed by TVA, the Congress, and the many supporters back in Tennessee who have devoted tireless energy and effort to this project.

THE SNAIL DARTER IS ALIVE AND WELL IN THE HIWASSEE RIVER. We want the Tellico project to be completed and used so that we may go forward with our hopes and plans for the future. A future of job opportunities, security, and self-respect.

Thank you very much for the opportunity to appear before your committee and express our views here today.

POLL BY:
 Political Surveys & Analysis, Inc.
 53 Bank Street
 Princeton, New Jersey
 February, 1972

The question: *As you may know, T.V.A. has been building this project and now some people have become opposed to it. As things stand now, do you favor or oppose the completion of this Tellico Dam project?*

	<u>Favor</u> %	<u>Oppose</u> %	<u>Don't know</u> %
3-COUNTY TOTAL	69	15	16
<u>SEX</u>			
Men	79	12	9
Women	60	17	23
<u>AGE</u>			
Under 35 years	65	18	17
35 to 49 years	76	14	10
50 years and over	66	14	20
<u>EDUCATION</u>			
College	61	28	11
High School	75	10	15
Grade School	70	11	19
<u>COUNTY OF RESIDENCE</u>			
Blount	67	16	17
Monroe	77	12	11
Loudon	69	13	18
<u>PLACE OF RESIDENCE</u>			
Nearer proposed projects	73	13	14
Further from projects	67	16	17
<u>POLITICS</u>			
Republicans	68	18	14
Democrats	69	10	21
All others	72	14	14

IN APRIL, 1972, RADIO STATION W N O X OF KNOXVILLE, TENNESSEE, CONDUCTED A CALL-IN SURVEY WHERE THEIR LISTENING AUDIENCE WAS ASKED IF THEY FAVORED OR OPPOSED THE COMPLETION OF THE TELlico PROJECT. THE RESULTS WERE:

FAVOR
%

87

OPPOSE
%

13

SURVEY SHOWS DAM O.K.

In the recent survey taken by the Monroe Citizen, and basing our figures on the number of questionnaires that were made out and returned to us, we are happy to report the following results: 63-1/3% of our readers are in favor of the proposed Tellico Dam, 35% of our readers are against it, and 1-2/3% are undecided.

We do not maintain that this is the most accurate type of survey that could be taken, but we do vouch for the accuracy based on the returns made. It should be noted that while only about 15% of our circulation is in Vonore, Lakeside and other communities along the Little Tennessee River, 23-1/3% of the total questionnaires returned indicated that the respondent's land would be covered with water. Of this 23-1/3% who stand to lose their land, an amazing 64-1/2% were in FAVOR of the dam.

If the survey is accurate, and we have no way of telling for sure, the percentage of those in favor of the dam who might lose their land is higher than the favorable average for the entire area.

The Monroe Citizen invites anyone to examine the questionnaires returned and check our figures. Of those mailed in we stapled the envelopes and the questionnaires together in order to substantiate their authenticity.

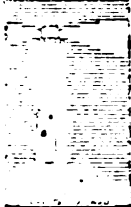
Any citizen who would like to express himself about the proposed dam should call or write Mr. A. J. Wagner, Chairman of the Board, Tennessee Valley Authority, Knoxville, Tennessee, immediately. I have received word that the T.V.A. Board of Directors will go to Washington next week to work on their budget with the Bureau of the Budget. This means that the decision, if it is to be made for the next fiscal year, will be made no later than next week.

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The Knoxville News-Sentinel

A Scripps-Howard Newspaper

Established Dec. 23, 1896


RALPH L. MILLETT JR.
 Editor

ROGER A. DALEY
 Business Manager

"Give Light and the People Will Find Their Own Way"

Friday, August 12, 1977

More in Knox Favor Tellico Dam Than Breeder Reactor, UT Survey Shows

More people in Knox County apparently favor completion of Tellico Dam than favor completing the Clinch River Breeder Reactor, according to a UT survey.

However, the survey, conducted by the Communications Research Center of 268 household heads, shows that most Knox County citizens favor completion of both projects.

According to the survey, 58.6 per cent favor completion of the breeder reactor, while 11.6 per cent oppose the project and 29.9 per cent are undecided. Only 13.8 per cent are against Tellico Dam, while 75 per cent favor its completion.

Dr. Jack B. Haskins, director of the Communications Research Center, said the sampling error for the results of the survey is plus or minus 3.1 per cent. This means one can be 95 per cent sure

any findings in the poll are within 6.2 per cent of the results if all adult household heads with telephones in Knox County were questioned.

Other findings show 59.7 per cent are opposed to complete freedom by theaters to show any kind of movies they wish. Fifty-eight per cent said standards for selling sexually explicit material in the Knoxville area should be stricter.

Most persons in the survey favor the merger of city and county governments and say each should have equal influence in a unified government.

Those included in the survey were also asked about the value of public opinion polls on local issues, and 80.2 per cent said they are either useful or highly useful. Some 6.3 per cent said there is no benefit in such polls and 13.4 per cent were undecided.

TO: SUBCOMMITTEE ON RESOURCE PROTECTION OF THE SENATE
ENVIRONMENT AND PUBLIC WORKS COMMITTEE

Gentlemen, it is with pleasure that I have this opportunity to appear before you and file this statement in support of the completion of the Tellico Dam Project being constructed by the Tennessee Valley Authority in Monroe, Loudon, and Blount Counties of Tennessee.

RETROSPECT: TELlico DAM AND RESERVOIR:

The Tellico Dam Project was first proposed in 1942 as the Fort Loudoun Extension to the Fort Loudoun Reservoir. Because of the war effort, it was not built at that time. In 1963, T.V.A. conducted indepth studies to determine the need and benefits from the project and this information was furnished to Congress and after various committee hearings in 1965 and 1966, Congress funded the Tellico Dam as a multi-purpose, water resource and regional economic development project. Congress has continued to fund the project up to the present for expenditures in the sum of 116 million dollars. To say that the Tellico Project has not been thoroughly analyzed and debated is to ignore the facts and record and is an insult to the careful analyses of the Congress and others involved.

Construction of the Tellico Dam began in 1967. The Endangered Species Act was passed by Congress in 1973, when the Tellico Project was 75% complete. The snail darter was discovered in 1973 and placed on the endangered species list on November 10, 1975, over the objection of the T.V.A., and at which time the Project was 80% complete.

When the snail darter situation first became known to T.V.A., it is our understanding that T.V.A. informed Congress through the House and Senate Appropriations Subcommittees of the problem and of T.V.A.'s view, that since the project was at an advanced stage of construction, it should be completed in any event. Congress agreed and directed T.V.A. to complete the project "as promptly as possible for energy supply and flood protection in the public interest."

Meanwhile, T.V.A. carried on extensive research on the fish, including efforts to transplant it to other streams. Snail darters transplanted to the nearby Hiwassee River have reproduced there, a favorable indication that the transplant is successful. As a footnote, we understand the snail darter is one of more than 116 described species of darters, and scientists engaged in classifying fish have been discovering new darter species at the rate of about one a year. Many darters differ only because of small differences in the shape of the scales and fins and the location and number of colored bands on the body.

The Tellico Project is now essentially complete; all work necessary for the closure of the dam has been completed. The only work remaining is some road building, landscaping and general finishing touches. Public support for the closure of the Dam and completion of the Project is much in the majority of the three counties involved and surrounding area. All public opinion polls have been running in the 80% to 90% favorable bracket, with the most recent survey in the Second Congressional District of Tennessee, conducted by Congressman John Duncan, reporting that 87% favored completion and 90% favoring completion in the three county area involved of Monroe, Loudon and Blount Counties.

BENEFITS OF THE DAM AND RESERVOIR:

(1) Electric Power:

Allowing T.V.A. to proceed with the filling of Tellico Reservoir and with opening the canal between Tellico and Fort Loudoun Lakes would result in additional power generation averaging 200 million kilowatthours a year from the additional streamflow through Fort Loudoun Powerhouse.

While this is not a large amount of power compared to T.V.A. operations overall, it would be a useful amount from a renewable energy source. For example, this amount of electricity is equal to the annual heating requirements of 20,000 average Tennessee Valley homes.

At this point there would be essentially no additional cost for this power since Tellico Dam is already built and ready to hold water. At present fuel cost, it would take nearly \$2 million a year worth of coal or \$6 million worth of oil to generate the same amount of electricity and that value could be expected to increase over the very long expected lifetime of Fort Loudoun Powerhouse.

It is opportune that additional sources of energy be developed and produced in view of the crises, that certain areas of the county have experienced. Not only should there be concern for the source of energy but the cost to the consumer is of utmost concern. Electric rates in the T.V.A. area continue to be among the lowest in the country. In 1970 the average residential rate was a little over 2 cents a kilowatthour for houses nationwide and just over 1 cent in the T.V.A. area. In 1976, it is about 3.4 cents nationwide and 2.3 cents in this region.

(2) Flood Control:

The Tellico Reservoir will provide 126,000 acre feet of flood storage space as compared with 111,000 acre feet of storage in Fort Loudoun Reservoir. This additional storage space, if available in 1973, would have further reduced the flood damage at Chattanooga by \$15 million.

(3) Recreation and Tourism:

The primary recreation area at Tellico is in the upper reaches of the reservoir and will adjoin the Great Smoky

Mountains National Park and Cherokee National Forest. This park is the most heavily used of the national park system and is experiencing considerable overcrowding. The national forest also received considerable recreation use.

Improved highways will link the project area with existing major recreation areas, employment centers, and the interstate highway system. Highway 72 will be relocated and upgraded as part of the Tellico Project, resulting in improved access to I-75 and I-40 and to the Great Smoky Mountains National Park via the Foothills Parkway. Also, Highway 411 is scheduled to be widened to four lanes from Madisonville to Maryville, which will improve access to Tellico Reservoir from Maryville, Alcoa, and Knoxville. U.S. Forest Service plans call for construction of the Miller Ridge Road, which will provide better vehicle access between recreation areas in the Cherokee National Forest and the upstream portion of the Tellico Project. These highway developments and the Tellico Project together should substantially increase recreation use in the area by persons living outside it. The Tellico Project will serve as an adjunct to the national park and national forest and will broaden the range of recreation opportunity and contribute to the development of a national recreation complex that will include the project area.

(4) Economic Development:

Probably the most significant benefit of the project is the need for economic development. The three county

area is truly an area characterized by under utilization of human resources and outmigration of young people. Latest figures show that Monroe County has an unemployment rate of 12%, the second highest in the State of Tennessee.

The planned industrial development is located in Monroe County near Vonore, Tennessee. With impoundment of the reservoir, navigation of the river to this area will be possible. A barge-port-site has been graded. The L & N Railroad runs by the site as well as U.S. Highway 411. U.S. Highway 411 is connected with interstates 75 and 40 by relocated State Highway 72. Monroe County Airport is approximately 15 miles away and Knoxville Airport 35 miles. Because of the accessibility to this area and multi-transportation facilities, industry will be attracted.

Considerable work and planning has gone into the development initially of a 350 acre industrial park site. Federal grant funds for roads, water and sewer totaling \$1,300,000.00 has been tentatively approved for fiscal year 1977-78, by other Federal Agencies. Many hours have been spent by local individuals in planning the industrial park as well as dollars. Monroe County Court has approved the development of the industrial park and has appropriated funds for the services of a consulting engineering firm to work on the project. Various trips have been made by local officials and citizens to seek funds from other government agencies and to further plan the development of the industrial park.

Not only will the completion of the dam and reservoir and the further development of the industrial park help relieve the unemployment situation in Monroe County but it will also provide jobs for surrounding counties. Loudon and Monroe County have cooperated to build and operate a \$4 million water facility near the proposed industrial park.

Development and construction of water related homes and businesses as well as the use of the reservoir by more people will also be an economic factor for the area.

ENDANGERED SPECIES ACT AS RELATED TO TELlico:

It has heretofore been pointed out the time sequence of the beginning of the Tellico Project, the passage of the Endangered Species Act and the discovery and listing of the snail darter.

The "snail darter" is not the real concern of the opposition to this project but it is the "reason" by which the "means" (Endangered Species Act) can be accomplished to stop or delay the project. As a result, special interest groups are given a "means" by which they can go against the institution or Federal Agency to halt projects irrespective of the human needs or benefits, if in fact a listed species is threatened or endangered. The Courts have construed the language of the Act as being absolute and totally inflexible.

In view of the highly technical and scientific realities involved, it would appear that Congress did not intend the works of the Act to be construed in such a narrow sense.

Consider these few basic scientific realities:

A species is any group of organisms with common characteristics which breeds separately. The difference between species is frequently slight and recognizable only to persons specifically trained in a given field.

Scientists have identified about 2,000,000 separate species of living organisms (1.4 million animals and 600,000 plant). New species are being identified constantly--more than 10,000 new species are being discovered and described each year, and most scientists would probably agree that the current number for all existing species could be as high as 5,000,000.

There are more than 600 currently described species of freshwater fish in the United States and Canada alone, and 116 of these are known darters.

In the substrate of a river, the rich soil of a corn field, on the floor of a forest, there may exist many thousands of different organisms often representing hundreds of species.

Species are constantly evolving from common ancestors. Over the ages, far more species have passed out of existence than are currently living on earth.

Many living organisms have very limited ranges. It is conceivable that every river, every hillside, and every field could harbor an undescribed and perhaps unique species.

The Department of the Interior reports that there could be 200,000 "full" species plus as many as three to five times that number (600,000 - 1,000,000) of additional subspecies and individual populations that needed listing and protecting as threatened or endangered worldwide.

It would further appear that Congress did not intend, in passing of the Act, that Federal Projects which were 75% complete would be halted upon the discovery of a specie that was later placed on the endangered list by certain special interest groups that had previously opposed the project for other reasons.

The ruling of the Sixth Circuit opinion in the case of Hill, et al vs. T.V.A., filed January 31, 1977 is the application of the law in its strictest sense. The Court pointed out that Congress passed the Act and the Court would not re-write it and stay in keeping with the separate powers doctrine as provided by the U. S. Constitution.

The Endangered Species Act has a profound impact on the Tellico Project and if allowed to stop the completion of the project, many opportunities for the citizens of the area will be curtailed and the real need, "human needs" will be endangered.

RESOLUTION OF THE PROBLEM:

Because of the very situation existing here, the Endangered Species Act should be amended to be more specific as to

its terminology and interpretation. The Act should be modified that projects such as the Tellico would not progress to this point and then be halted, wastefully spending the tax payers' dollars.

The opposition would say that it was not a waste of tax payers' money to stop a \$116 million project which is essentially complete. They have said that there are alternative uses by which some of the loss could be salvaged. This is probably true with respect to some of the roads and bridges that have been built. However, there have been 17 bridges torn down in Monroe County alone which would have to be re-placed if the land taken is to be made available again for usual public benefit.

It was surely the intent of Congress in its passage of the Endangered Species Act that the question of balancing of the equities should be considered instead of the strict interpretation of the law. In this respect, balancing of the equities and the cost benefit analysis should not be based solely upon dollars and cents.

There is also the social and economic factor which is still the paramount concern of higher forms of life. If man cannot have the basic needs for his own livelihood and existence, then all forms of life could be endangered.


The Act should be revised to permit and encourage analysis of social, economic and ecological needs in a framework

which considers the scientific realities inherent in specific circumstances. It should provide for a flexible decision making process that balances completing demands and produces national decisions which accommodate both man and the life forms within the ecological systems upon which he depends.

An alternative plan other than completion of the Tellico Project would not serve the best interest of the area and nation. Questions being raised now by the opposition are all that should have, and were raised in the early stages of the project. The real question is the same now, if not greater, as it was ten years ago, that there is a need for the Tellico Project so as to provide additional energy, flood control and jobs.

The Congress should exempt the Tellico Project from the Endangered Species Act either by specific legislation or by general amendment or revision.

Respectfully submitted.


ROBERT J. PENNINGTON
CHAIRMAN, THE LITTLE TENNESSEE
RIVER PORT AUTHORITY

Senator CULVER. Our final witness this morning is Mr. Lynn Seeber, general manager of the Tennessee Valley Authority.

It is a pleasure to welcome you. You may begin. I think we have indicated some of our time problems. We appreciate your cooperation.

STATEMENT OF LYNN SEEBER, GENERAL MANAGER, TENNESSEE VALLEY AUTHORITY

Mr. SEEBER. Mr. Chairman, you tell me the entire amount of time you would like to hear.

Senator CULVER. We are supposed to adjourn at 12:30. It is now 12:28. We will try to accommodate your testimony before we adjourn. I would like to request your cooperation to respond to a considerable number of detailed questions that we would like to ask you for the record.

We will handle it that way, if Senator Wallop is agreeable.

Mr. SEEBER. I will not take time to introduce my people.

The one thing I wanted to get to very quickly is there seems to be a certain impression that this has really been the first opportunity that the Congress has had to consider the matter before it today, when in point of fact, this started back in 1965 and 1966 with the original hearings on the appropriations to start the Tellico project.

These same arguments that you have been hearing today were voiced eloquently at that time and in considerable detail. There was great debate; there was debate on the floor itself; all in the Congressional Record. And at that time Congress heard both sides and decided to build the Tellico project.

Every single year since that initial appropriation and appropriation hearings, it has been the same thing and we have had 10 years of the same arguments being presented. Each of those times Congress has heard it, they have said they want TVA to continue the Tellico project.

Another thing, a new law came into being—the National Environmental Policy Act. We had a lawsuit and an injunction which halted the project for almost 2 years. During that time, TVA filed a final environmental statement which was litigated at great length in court and the court held it was adequate and the project could proceed. That was yet another forum for debating and answering these same questions.

The thing that I would like to get at here is that we have not really been talking about some of the significant benefits because of the changes in time that has been talked about. Indeed, this is 1977; this is not 1967. And one of the things that has been dismissed as being minuscule, for example, is the power benefit.

I want to talk about three benefits and where they stand today, because I think we have to look at this project where it is today and not go back and rehash something as it existed years ago.

Needless to say, we have an energy crisis on our hands, far different from the situation that existed in 1967. Taking a look at what the Tellico project would do to help that situation, 200 million kilowatt-hours of hydroelectric power each and every year will be generated by the Tellico project. Hydroelectric power is the least costly power that we have; cheaper than coal and uranium.

Putting this in real perspective, I had our people go back and take the months of April, May, and June of this year and had them compute if the Tellico project had been allowed to operate at that time what it would have done to save money in the pockets of the ratepayers in the Tennessee Valley. They found it would have saved \$1 million in just those 3 months.

This graphically refutes those who say there is no hurry about getting this project built. Every month that goes by, you have a loss of that water that will not be used to generate energy. There is great urgency.

The power benefits alone are around \$3.5 million annually. The energy situation has changed and makes the power far more valuable than it was when the project was initially proposed. We are also interested in conservation of resources. Therefore, the equivalent amount of energy that we would use if we don't have the Tellico project is also important. You will need to burn 90,000 tons of coal each year to get this same amount of energy, or 15 million gallons of oil each year, or 1.8 billion cubic feet of natural gas each year to get the energy.

How much is 200,000 kilowatt-hours of electricity? That is enough energy to heat 20,000 electrically heated homes in our area.

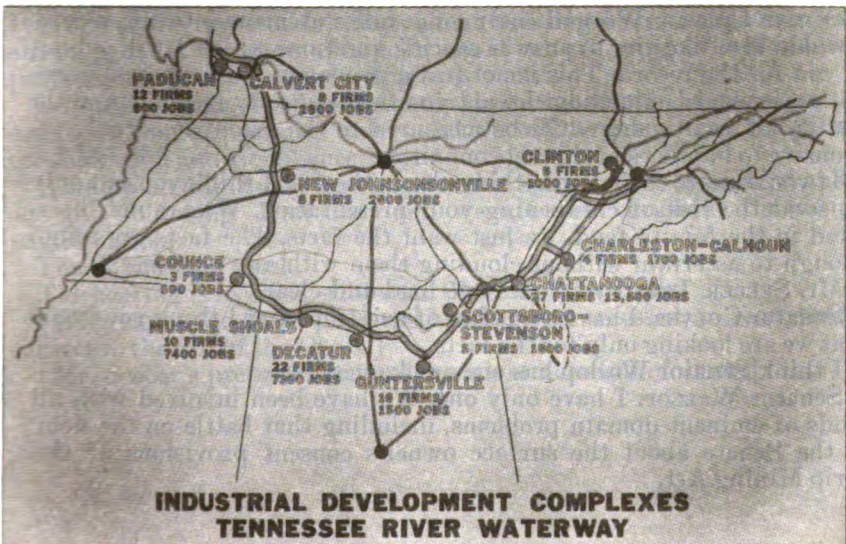
On flood control, something has happened since the early days of this project, namely, the flood of 1973, which demonstrates the value of the Tellico project for flood control. If the Tellico project had been in place when that flood occurred, it could have averted 2 feet of the flood crest at Chattanooga, Tenn., and averted damages of \$15 million.

And if I may, I have a photograph I would like to have submitted. We have all kinds of endangered habitats. We want to show you a picture from the 1973 flood, which is a picture of an endangered habitat; namely, that of the people of Chattanooga who had water in their homes because we did not have the Tellico dam ready to save them. And in that photograph, you can see that a reduction of 2 feet in the flood level would have kept water out of the living rooms of some of the houses in the picture.

[The photograph follows:]



The third benefit is jobs. The estimates are that 6,600 new jobs would be brought to the area by the Tellico project. Again, has something changed here? Are the jobs no longer necessary? We have heard testimony on this already. The unemployment rate in Monroe County is 12 percent, according to the mayor of Tellico Plains. Another significant figure is that the people on unemployment



rolls in 1976 in the three counties of the project area was 3,300. So there is still the need for jobs.

Will the Tellico project bring those jobs? How do we know? Will industrial jobs come or won't they? All we can rely on is 40 years of experience. And we have a map that will show that whenever on the Tennessee River you have certain key ingredients coming together, in every single case where those ingredients have come together, the jobs have been created. This map indicates where those places are and how many jobs have been generated along the way.

Not to exceed your patience for taking more time, I will come to the windup point. It is strange that we should be here, in a way, because we are here due to a court order saying that you can't do things to the Little Tennessee River because that would harm the habitat of the small fish, when everybody here, including Dr. Etnier, including the GAO, everybody agrees that, in fact, the Little Tennessee River as it stands today is not a suitable habitat for the snail darter.

Before the snail darter was listed as endangered, TVA had already built a dam blocking that river. Our dam blocked the river in August of 1975 before the darter was listed or its habitat listed. Everybody now agrees that because of this prior construction of the dam the Little Tennessee River is no longer suitable as a habitat for the snail darter. Does this mean the darter cannot live? No, because TVA has been successful in a transplant operation that has transplanted darters to the Hiwassee River. Their number is increasing. We put in about 700 of them. It is double that now. You look at those two rivers and the good, growing, thriving snail darters' population is in the Hiwassee. They are dying out in the Little Tennessee. Yet it is the Little Tennessee that is listed as their habitat. This is a strange note, indicating perhaps some inflexibility somewhere.

That will conclude my remarks. We would like very much to have an opportunity to submit additional information for the record to respond to some of the things that have been said about us.

SENATOR CULVER. We will enter your full statement into the record. I would also like you to answer specific questions which I will submit to you for the record. This is not just a propaganda forum, you know with everybody unloading. I want you to specifically respond, and the quality of your answer will be measured to the extent it is truly responsive to inquiries of this subcommittee.

If you want to throw everything else in the pot, I think you can only do so at the risk of cheapening your presentation. We are not interested in the family feud, we just want the facts. The facts are tough enough to ascertain without clouding them with any nonsense.

MR. SEEGER. I read your message loud and clear.

SENATOR CULVER. I have a number of questions and I think you know that we are looking only for the facts.

I think Senator Wallop has one quick question.

SENATOR WALLOP. I have only one. We have been involved with all kinds of eminent domain problems, including that battle on the floor of the Senate about the surface owner's consent provisions of the Strip Mining Act.

How do you respond to charges of the people who came here who said to get 2 acres of their land you are condemning 200?

Mr. SEEBER. We are not in here trying to just build a dam and reservoir alone. The shoreline and what happens to that shoreline is very important as to whether this project succeeds or fails. For example, we need 5,000 acres.

Senator WALLOP. What is the matter with the industrial people coming and getting that? Why do you have to condemn those peoples' land for two acres of reservoir?

Mr. SEEBER. We used the word "condemnation." Over 90 percent of the cases it is voluntary.

Maybe not willingly.

To get to your point, the reason that we felt it necessary to acquire the land as part of the project is that we have experienced that if you go out and build an instant reservoir and leave the land in private ownership, what happens is your industrial sites get used up immediately because there is immediate demand for homesites and cabin developments, and this has happened many times.

And the local communities did not have the money necessary to buy 5,000 acres.

Senator WALLOP. Are you telling me the Boeing Co. doesn't?

Mr. SEEBER. They are not involved in that aspect.

Senator WALLOP. They were there and considered at one time. They don't have that money?

Mr. SEEBER. I thought you were speaking of the local industrial development. These are poor counties.

Senator WALLOP. I tell you, I will detail a number of questions on this. I think you answered my question when you said it was entirely voluntary, but not really. I think that got to where I was going.

Mr. SEEBER. One of the great tragedies of building a public project is the effect on the people who own the land, and it may have been in their family for generations, and we are fully appreciative of that. It is one of the regrettable things about building a highway, a dam, or anything at all. We know of no solution. If you are going to have public projects, it goes along with having to do that.

Senator CULVER. I want to thank the members of the panel very much for your appearance today, and we will be submitting for your consideration additional questions.

We do plan additional hearings on this subject. One tomorrow and one the following Thursday, and we are very grateful for your participation.

Thank you very much.

The hearing is recessed, subject to the call of the Chair.

[Whereupon, at 12:43 p.m., the hearing was recessed, to reconvene subject to the call of the Chair.]

[Mr. Seeber's prepared statement with attachments follow:]

STATEMENT OF LYNN SEEGER, GENERAL MANAGER
TENNESSEE VALLEY AUTHORITY
BEFORE THE SUBCOMMITTEE ON RESOURCE PROTECTION
THE ENDANGERED SPECIES ACT OF 1973
THE TELlico PROJECT--A CASE STUDY

July 21, 1977

Thank you, Mr. Chairman. As the Federal agency responsible for the construction and operation of the Tellico Dam and Reservoir project, we appreciate very much the opportunity to present our views.

It seems to me that the only realistic way to discuss the Tellico project is to discuss it as it is today. It is an exercise in futility to go back to 1967, when the project was started, or 1968, when a certain cost-benefit analysis was made, and argue all over again what should or should not have been done at that time. The question today is no longer "Shall we build Tellico Dam?" The dam is built and the reservoir has been ready for filling since January 4, 1977. Approximately \$105 million has been spent as of July 15 out of a total project cost estimate of \$116 million. The \$11 million to finish the project is for final items such as building roads which do not have to be done before filling the reservoir.

In other words, the project has been ready since January of this year to start providing benefits to the public. The reason that this essentially completed project cannot provide benefits is that the Sixth Circuit Court of Appeals has construed the Endangered Species Act to require that a project be stopped, regardless of its state of completion, if it would adversely affect the habitat of an endangered species--in this case a 3-inch fish called the "snail darter."

The questions raised by this case study of the Tellico project are:

A. Is this reasonable?

B. Is this what Congress intended?

Some history of the Tellico project may be useful to our case study. Construction of the Tellico project began in 1967--some six years before the snail darter was discovered and the Endangered Species Act became law. The environmental and economic pros and cons of the project were vigorously argued before Congress in 1965 and 1966, before the funds for starting the project were appropriated. The same arguments against Tellico you hear today were made then. In fact, funds had been requested in the President's budget for fiscal year 1966, but Congress postponed the start for one year in order to have TVA perform a study of the effects of the canal connecting the two reservoirs on water quality. Since the project was initially funded, Congress has continued to hear these same arguments every year during the appropriations hearings.

Scrutiny of the Tellico project has not been limited to Congress. In 1971 the environmental aspects of the project were challenged in court under the National Environmental Policy Act. Construction of the project was halted for nearly two years during the course of this litigation. After a full trial on the merits, the courts held that TVA's final environmental impact statement was fully adequate and in compliance with NEPA. Construction of the project then resumed.

Tellico was more than half completed when the snail darter was discovered and the Endangered Species Act passed in 1973. Tellico was more than 75 percent complete when suit was filed in February of 1976 under the Endangered Species Act. The snail darter had been listed as endangered about three months earlier.

After a full trial on the merits, the United States District Court for the Eastern District of Tennessee balanced the equities and ruled in TVA's favor in the snail darter suit. The court held that it was not reasonable to conclude that Congress intended the Endangered Species Act to halt the Tellico project at its advanced stage of completion. On January 31, 1977, the Sixth Circuit Court of Appeals reversed the district court and enjoined the filling of the reservoir. The appellate court held that the Endangered Species Act did not permit an analysis of the equities.

The Tellico project was studied yet again in the early part of 1977 by a team composed of OMB, CEQ, Corps of Engineers, and TVA. This study was a part of President Carter's review of all water projects in the country. The remaining cost and remaining benefit ratio for the project was found at that time to be 7:1.

So much for history--let's talk about benefits. I will discuss three of them briefly.

Energy - The Tellico project will provide 200 million kilowatthours of hydroelectric power each year. This is tremendously more valuable to the public now than it was in 1967.

Hydro power is by far the cleanest and least expensive form of power that we have. This power from Tellico is particularly economical because no additional switchyard, powerhouse, or generators are required. The water will simply be diverted through the Fort Loudoun turbines, thereby achieving additional energy. The Fort Loudoun Dam turbines were built to handle water from the Little Tennessee River which would be diverted into the main river upon construction of the Tellico project, which was originally planned at that time.

Annual power benefits in today's world are valued at about \$3.5 million. In April, May, and June of 1977, if TVA could have operated Tellico, its operation would have saved the public over \$1 million in its power rates. These savings are based on actual system conditions. In other words, the power benefits alone would more than justify the \$11 million expenditure to complete the project. This benefit alone would pay off the remaining costs for Tellico in four years.

Criticism has been leveled that the amount of power provided by Tellico is not enough to be important. Let's put the 200 million kilowatthours into perspective--

A. This is enough energy to heat 20,000 homes annually.

B. As a means of conserving fossil fuels, it is the annual equivalent of 90,000 tons of coal, 15 million gallons of oil, or 1.8 billion cubic feet of natural gas; and the energy is provided by water power--a completely renewable resource which does not pollute.

C. It is more electricity than was produced individually by 13 of the 29 TVA hydroelectric dams.

Flood Control - The Tellico flood control is especially valuable because--

A. It gives flood control storage where we need it the most--on the main river above Chattanooga. During the flood season we have only two inches of runoff space along the main river dams above Chattanooga; whereas we have about six inches of runoff space in the tributary areas.

B. The connecting canal provides important flexibility by permitting a shift of floodwaters back and forth between watersheds, so that the storage space in both Tellico and Fort Loudoun can be used whether the storm comes from the Little Tennessee watershed or the Tennessee watershed.

Something happened since 1967 which demonstrated beyond any question the need for and value of the flood control benefits of the Tellico project--the 1973 flood. If Tellico had been in operation in 1973, the flood at Chattanooga would have been reduced by at least two feet and damages of some \$15 million would have been averted.

Jobs. - Perhaps the heart of the project is the jobs and economic opportunities it will create in an area now characterized by unemployment, low incomes, and the outmigration of young people. We estimate that 4,000 basic industrial jobs and 2,600 trades and services jobs will be created along the reservoir over a 25-year development period. This should be compared with

the alternative of returning the land to farming. Less than 200 families made a living farming the land before it was acquired for the project.

In 1933, when TVA was established, the per capita income of the State of Tennessee was about 45 percent of the national average. Today, largely as a result of transition from a farm economy to an industrial economy, the per capita income has grown to about 80 percent of the national average. Unfortunately, even the prosperity which has been achieved is not shared evenly. Monroe County, in which about half the project is located, has a per capita income only 56 percent of the national figure, and more than 26 percent of its families have incomes below the poverty level. It has a current unemployment rate of over 12 percent. The three-county area affected by the project had more than 3,300 people on the unemployment rolls in 1976. Yes, it is clear that the Tellico area needs jobs and needs them badly.

How do we know that the Tellico project will really produce the industrial jobs? TVA has found through experience that there are a few unique locations in the Tennessee Valley which are unusually favorable for attracting heavy industry. These locations are areas where commercial barge transportation, rail service, highway connections, and large acreages of relatively flat land all came together at the same place. The Tellico project near Vonore now has all these advantages but a navigable waterway, and closing the Tellico Dam will provide the missing link. TVA's jobs estimate for Tellico is based on what has

already happened whenever these unique locations have occurred in the Tennessee Valley. For example, the following waterfront industrial employment has already occurred at the locations:

<u>Place</u>	<u>No. of plants</u>	<u>No. of jobs</u>
Paducah	12	900
Calvert City	8	2,800
New Johnsonville	8	2,600
Counce	3	500
Muscle Shoals	10	7,400
Decatur	22	7,300
Guntersville	16	1,500
Scottsboro-Stevenson	5	1,800
Chattanooga	27	13,500
Charleston-Calhoun	4	1,700
Clinton	5	1,000

With only 1,433 acres of controlled navigable waterfront land available in east Tennessee above Chattanooga, of which 1,100 acres is owned by TVA, the addition of 5,000 acres of land for heavy industry on the Tellico project is urgently needed.

One final irony deserves mention. Although Congress has continually funded the Tellico project and authorized TVA to spend over \$105 million to achieve the benefits from the project in the public interest, the project has been halted by an act of Congress which was not passed until it was over half completed. It has been stopped because impoundment of the reservoir may adversely affect the critical habitat of the snail darter in the Little Tennessee River. Now, it appears that TVA has successfully transplanted the fish to another river, and because of the structures placed in the Little Tennessee River before the fish was listed as endangered, it can no longer survive in the project area. Yet the project stands idle, resulting not

only in the loss of the public investment in the project but most importantly in the loss of the badly needed public benefits.

With the Chairman's permission, we would also like to submit the following items for the record: (1) an updated version of a summary statement of the Tellico situation which we prepared and submitted to the Investigative Staff of the House Appropriations Committee in April of this year; (2) a biological assessment of the problems created by the Endangered Species Act prepared by TVA's Division of Forestry, Fisheries, and Wildlife Development; and (3) three joint resolutions passed by the Tennessee legislature, one by a vote of 96 to 0 in the House and 29 to 2 in the Senate, asking Congress "to amend the Endangered Species Act to provide for balancing the interests of preserving endangered species with the social and economic needs of the people, and to allow for the completion and use of the Tellico and Duck River projects which are vitally important to the people of Tennessee."

Thank you again, Mr. Chairman, for this opportunity and if we can answer any questions we shall be happy to do so.

TELLICO DAM AND RESERVOIR PROJECT

AUTHORIZATION

The Tennessee Valley Authority Act of 1933, 48 Stat. 58, as amended, 16 U.S.C. §§ 831-831dd (1970; Supp. V, 1975), under which the Tellico project was authorized, provides in the preamble that it is an act "To improve the navigability and to provide for the flood control of the Tennessee River; to provide for reforestation and the proper use of marginal lands in the Tennessee Valley; to provide for the agricultural and industrial development of said valley; to provide for the national defense by the creation of a corporation for the operation of Government properties at and near Muscle Shoals in the State of Alabama, and for other purposes." Section 4(j) of the Act authorizes TVA "to construct such dams, and reservoirs, in the Tennessee River and its tributaries, as . . . will provide a nine-foot channel in the said river and maintain a water supply for the same, from Knoxville to its mouth, and will best serve to promote navigation on the Tennessee River and its tributaries and control destructive flood waters in the Tennessee and Mississippi River drainage basins" That section further directed the TVA Board "to report to Congress their recommendations not later than April 1, 1936, for the unified development of the Tennessee River system." On November 8, 1966, the Tellico project was authorized by the TVA Board pursuant to the TVA Act and in accordance with the report for the unified development of the Tennessee River system, which was submitted by TVA to Congress in March 1936. Congress appropriated funds to begin the Tellico project on October 15, 1966 (Pub. L. No. 689 (80 Stat. 1014)), and has appropriated funds for its construction annually thereafter.

TELLICO PROJECT INFORMATION

The Tellico Dam site is in Loudon County, Tennessee, near Lenoir City, at mile 0.3 on the Little Tennessee River. The Tellico Dam will create a reservoir extending upstream approximately 33 miles and connecting with Fort Loudoun Reservoir by a short canal. The canal enables the navigation and power features of the project to be attained without construction of a navigation lock or powerhouse, and valuable flexibility is achieved in TVA flood control operations.

PROJECT BENEFITS

The project's benefits are detailed in the 1963 project planning report and the 1972 3-volume final environmental impact statement, both of which were submitted to Congress in connection with the project appropriations process. Some of the major benefits to be derived from the project are as follows:

- **Energy.** Tellico Dam and Reservoir will provide electric energy by diverting water from Tellico through the existing Fort Loudoun turbines, which were designed and constructed in the 1940's to handle the additional flow from the Little Tennessee River. This extra water will enable Fort Loudoun to generate an additional 200 million kilowatthours in an average year, enough energy to heat approximately 20,000 Tennessee Valley homes. This power benefit has a current annual value of about \$3.5 million. Put another way, to produce this much electricity using coal, oil, or gas, it would require the burning of 90,000 tons of coal, 15 million gallons of oil, or 1.8 billion cubic feet of natural gas every year. Based on actual TVA power system conditions, if the Tellico project had been in operation during April, May, and June of this year, the public would have been saved over \$1 million in their power rates.
- **Flood Control.** Tellico reservoir will help control floods on the Tennessee River by providing an additional 126,000 acre-feet of flood storage space. This will be the most flexible storage on the TVA system because the interconnecting canal between Fort Loudoun and Tellico will allow the interchange of storage capacity to help control uneven distribution of storm runoff. It is also strategically located to provide storage on the main Tennessee River, where protection is so vitally needed for the city of Chattanooga. Most of the flood control benefits will be downstream at Chattanooga, where damage in a 1973 flood could have been further reduced by at least \$15 million if this additional storage had been available.
- **Jobs.** One of the primary purposes of the project is to create long-term social and economic opportunities for an area in east Tennessee characterized by low incomes and the outmigration of young people. The project will extend commercial navigation approximately 30 miles up the Little Tennessee River to what will become one of the best industrial sites in east Tennessee. By providing industrial sites with access to river transportation as well as improved rail and highway access, TVA estimates 4,000 basic industrial jobs and 2,600 trades and services jobs will be created along the reservoir over a 25-year development period. TVA's estimates of industrial development are fully supported by independent consultants' studies performed by The Fantus Company and the Real Estate Research Corporation in 1972.
- **Quality Living Environment.** This combination of jobs, land, and water offers a new opportunity for the best advantages of both rural and urban living. In order to insure that this development occurs in a carefully planned manner, these opportunities will be combined in a planned industrial, recreational, and residential complex called Timberlake, which could grow to 30,000 people over its development period.
- **Recreation.** The project will create an excellent recreation lake, 16,500 acres in size, which because of a small seasonal drawdown will be available for full public use the year round. Some 3,700 acres of shoreline and adjacent areas are set aside for public and private recreation development, and an additional 2,900 acres will be in open

space such as walkways and "green areas" or set aside for community recreation activity. Major historical sites are being reconstructed or restored by TVA for use in State-operated historical parks within the project area.

CULTURAL VALUES

From the outset TVA recognized the historical and archaeological values of the Little Tennessee River Valley and has undertaken in cooperation with the National Park Service, The University of Tennessee, and others, an orderly and extensive program of survey and investigation of the archaeological resources in the project area, extending over a period of 10 years. The major archaeological and historical sites have been excavated and three are being developed at substantial expense to accommodate the reservoir setting.

The great wealth of information and material that has been recovered has provided important knowledge of the several prehistoric cultures and also the historic Cherokee presence in the Valley. Much of this material and information would have been unavailable with the land in private ownership and would otherwise have been lost or destroyed through flooding, erosion, cultivation, and looting. Representative collections are being made available to the Cherokee Nation and the Eastern Band of Cherokees. Based upon the unanimous report of a committee appointed by the principal Chief of the Cherokee Nation, TVA was commended for the archaeological work being conducted.

Funding for the recovery effort is believed to constitute the largest expenditure on archaeological investigation, survey, and salvage made on a reservoir project anywhere in the United States. TVA's preservation of the Chota townhouse site and its ongoing restoration of Fort Loudoun and the Tellico Blockhouse in a lake setting have the formal approval of the Advisory Council on Historic Preservation. The Bowman House and the McGhee Mansion, both National Register properties, have been acquired and are available to responsible historical groups for restoration. TVA regards these developments, plus its plans for the Citico and Bat Creek interpretive centers, as constituting significant preservation of the most important historic and archaeological sites in the project area.

STATUS OF THE PROJECT

The Tellico project is essentially complete and TVA has been ready to impound the lake since January 4, 1977. More than \$105 million of the project's \$116 million estimated total cost has been spent to achieve the public benefits. However, on January 31, 1977, the U.S. Court of Appeals for the Sixth Circuit held that TVA may not impound the lake because this would destroy the habitat of the "snail darter," a 3-inch minnow which was designated a rare and endangered species by the

U.S. Department of the Interior, effective November 1975, when the project was about 75 percent complete. The Tellico project was started in 1967. The snail darter was not discovered and the Endangered Species Act was not enacted until 1973, when the project was over half completed.

THE SNAIL DARTER AND TVA'S CONSERVATION PROGRAM

The snail darter is one of 117 described species of fish in the darter family and one of about 80 species of darters that live in the State of Tennessee. Scientifically recognized as a separate species in 1976, the snail darter differs from other darters primarily because of minute differences in scale shape, fin configuration, and location and number of colored bands. It was added to the endangered species list in November 1975.

TVA's conservation efforts began almost as soon as TVA became aware of the discovery of the snail darter and almost two years before the fish was listed as endangered. Initially, TVA entered into a contract with The University of Tennessee to study the fish's life history. Since the summer of 1975, TVA biologists have conducted a comprehensive conservation program, including detailed study of the fish and its habitat and the transplantation of 710 snail darters to the Hiwassee River in an effort to assure their continued existence. TVA's snail darter conservation efforts are detailed in a written snail darter conservation program and the biweekly reports, all of which were submitted to the Department of the Interior for their information and comment.

It is generally agreed that TVA has done everything "humanly possible" to save the snail darter while completing the Tellico project. TVA biologists report that transplanted darters are doing well in the Hiwassee River and have reproduced for two successive years. This is the strongest possible evidence of a successful transplant.

In addition, knowledgeable biologists from both TVA and the Fish and Wildlife Service now generally agree that a natural population of snail darters cannot continue to survive in the Little Tennessee River with the dam structures in place. This is because dam construction work, completed in August 1975 (before the listing of the fish), has barred upstream migration of young snail darters which naturally drift downstream as larval fish into the slower moving, more productive waters of Watts Bar Reservoir through the sluice gates of Tellico Dam to mature. The net effect is that there has been virtually no recruitment of young fish in the Little Tennessee snail darter population in the last two years, and that population is now almost gone. In fact, our biologists say that there are currently several times more snail darters living at the transplant sites in the Hiwassee River than in the Little Tennessee River. In September 1976, TVA biologists discussed these findings in a consultation meeting with representatives of the Fish and Wildlife Service and the Tennessee Wildlife Resources Agency. Because of the situation in the Little Tennessee and TVA's apparently successful transplant in the Hiwassee, we requested permission to transfer several hundred darters to a jointly selected Holston River site in an effort to establish a second viable population of snail darters. While TVA biologists

were able to capture nearly 600 fish from below the dam, permission to complete the transplant was denied and the fish were ultimately placed in the Little Tennessee River by the Service, despite the known unsuitability of the site from a reproductive standpoint. Additional requests to undertake a Holston River transplant have also been denied by the Service.

These same facts--the darter's inability to reproduce and naturally survive in Little Tennessee and the success of the Hiwassee transplant--formed the basis for TVA's February 1977 petition to the Department of the Interior to delist the Little Tennessee River as critical habitat for the snail darter. This approach was mentioned in the Court of Appeals decision, and the petition was supported by a detailed scientific report and affidavit. The Department of the Interior has not acted upon the petition.

ALTERNATIVES

Work on the Tellico Dam, which began in March 1967, was completed last winter and the dam has been ready for closure since January 4, 1977. Since the Tellico project cannot be altered to avoid the effect on the snail darter's designated critical habitat in the Little Tennessee River, the Sixth Circuit's decision enjoining closure of the dam, if allowed to stand, will require the scrapping of the project and prevent realization of its benefits, for which over \$105 million of public funds has been spent to achieve. There are no alternatives to the Tellico project which will achieve its projected benefits since those benefits are dependent upon the creation of a reservoir. From the outset of this controversy, the only real option has been to complete the project or to scrap it entirely.

The question of alternatives to the project itself, more specifically the "scenic river alternative," has figured importantly in the snail darter controversy. The story is not a new one. The proposed scenic river alternatives were examined and debated by Congress in 1965 and 1966 before the project was funded (see Hearings Before a Subcomm. of the House Comm. on Appropriations, 89th Cong., 1st Sess., pt. 3, at 14-36, and pt. 4 at 747-784, 1002-1074 (1965); Hearings Before the Subcomm. of the Senate Comm. on Appropriations, 89th Cong., 1st Sess., pt. 4, at 43-157, 199-269 (1965); and Hearings Before a Subcomm. of the House Comm. on Appropriations, 89th Cong., 2d Sess., pt. 2, at 697-701, 753-768, and pt. 3, at 731-771 (1966), Hearings Before the Subcomm. of the Senate Comm. on Appropriations, 89th Cong., 2d Sess., pt. 4, at 44-48, 62-80 (1966). The economic benefits from the scenic river alternatives were reexamined in 1971 as a part of TVA's environmental and economic review of the Tellico project under the National Environmental Policy Act and found to be 2 percent of the economic benefits from the Tellico project. The loss of rare and endangered species, project costs and benefits, and alternatives were all considered in the EIS and the litigation challenging it. With regard to the economic analysis contained in the EIS, the court which approved the statement as fully adequate under NEPA said: "We can scarcely imagine a more satisfactory disclosure than that contained in [the] final statement."

Scrapping the project at this stage would involve enormous public costs. In addition to the loss of the badly needed public benefits, we estimate that approximately \$75 million in public investment will be lost. The GAO's recent study indicates that about \$47 million will be totally wasted if the project is not completed. The GAO also found that while the remaining expenditures would provide some benefit even if the project is not completed, those benefits will probably not be proportionate with their cost. In addition to lost investment costs, pursuit of a new goal, such as scenic river development, would also require the expenditure of an estimated \$16 million simply to remove structures and restore the site to a natural setting before development could begin.

TVA'S INTERPRETATION OF THE ENDANGERED SPECIES ACT--CONGRESSIONAL OVERSIGHT

Upon identification by TVA of the potential conflict between the Tellico project and the Endangered Species Act, TVA fully explained the snail darter situation to Congress, through its appropriations committees. In 1975 and again in 1976, TVA reported its interpretation of the Endangered Species Act to both the House and Senate appropriations committees and sought their guidance:

It is TVA's position that the ultimate decision to proceed with this project rests with TVA, and that TVA has acted responsibly, and in good faith in reaching its decision to complete the project. We believe that Congress did not intend the Endangered Species Act to be retroactively applied to existing projects like Tellico, which was over 50 percent complete at the time of the act's passage and the fish's discovery, and which was 70 to 80 percent complete at the time of the official listing of the snail darter as an endangered species. Even if applicable to Tellico, TVA construes section 7 of the Endangered Species Act to require Federal agencies to take reasonable measures, in consultation with the Secretary of the Interior, to conserve endangered or threatened species of fish, wildlife, and plants. The act was not intended to supplant an agency's primary responsibilities, or to repeal prior congressional approval and funding of authorized projects, such as Tellico, because the habitat of an endangered species would be altered or destroyed by completion of the project.

This view was and is fully consistent with the congressional declaration of purposes and policy of the act and with the explanation of the bill, before it was enacted, made by its floor manager Senator Tunney (119 Cong. Rec. 25689-25690 (1973)). The material presented by TVA to Congress, as reflected in the printed hearings, is attached as Collective Exhibit 1. In response to TVA's presentation, both committees, in their reports to Congress, directed TVA to complete the project as promptly as possible in the public interest. In 1976, the committee's report to the Senate specifically provided:

TELLICO PROJECT

The bill, as reported, contains the full \$9.7 million budget request for the Tellico project. During subcommittee hearings, TVA was questioned about the relationship between the Tellico project's completion and the November 1975 listing of the snail darter (a small 3-inch fish which was discovered in 1973) as an endangered species under the Endangered Species Act. TVA informed the Committee that it was continuing its efforts to preserve the darter, while working towards the scheduled 1977 completion date. TVA repeated its view that the Endangered Species Act did not prevent the completion of the Tellico project, which has been under construction for nearly a decade. The subcommittee brought this matter, as well as the recent U.S. District Court's decision upholding TVA's decision to complete the project, to the attention of the full Committee. The Committee does not view the Endangered Species Act as prohibiting the completion of the Tellico project at its advanced stage and directs that this project be completed as promptly as possible in the public interest.

Excerpts from those reports are also attached as Collective Exhibit 2. The Congress responded by appropriating funds to construct the project.

THE ENDANGERED SPECIES PROBLEM

A Discussion

**Tennessee Valley Authority
April 1977**

THE ENDANGERED SPECIES PROBLEM

The Endangered Species Act of 1973¹ represents an important legislative effort. It was passed during an era dominated by fears on many fronts that man's push for progress would do irrevocable harm to our living natural heritage. The new law calmed many of these fears.

Today, however, less than four years after its enactment, the cumulative impact of the Endangered Species Act of 1973 sounds a different note. The Endangered Species Act was seen as an important tool to help bring balance to national decision-making concerning economic growth and environmental protection. But, the Act, as now interpreted by the Sixth Circuit Court of Appeals in the recent case of *Hill vs. Tennessee Valley Authority* (snail darter case), January 31, 1977, does not promote balanced decision-making. Indeed, it specifically disallows it. Given the Act, as interpreted by the Sixth Circuit Court of Appeals, special interest groups could conceivably set out with confidence to stop any Federally funded or licensed project currently underway or proposed in the United States.

The Endangered Species Act of 1973 is designed to provide, among other things, a means to conserve the habitats upon which species, judged by the Secretary of the Interior² to be threatened or endangered, depend for life. One of the ways the Act accomplishes this goal is through the Interagency Cooperation section requiring Federal agencies, in consultation with and with the assistance of the Department of the Interior, to use their authorities by taking such action necessary to ensure that actions authorized, funded, or

1. The Endangered Species Act of 1973 (P.L. 93-205/87 Stat. 884/16 U.S.C. 1531-1534). December 28, 1973.

2. For marine species, the Secretary of Commerce can cause the listing of specific species.

carried out by them do not jeopardize endangered or threatened species or modify habitats which the Secretary of the Interior determines to be critical to the well-being of such species.

The Sixth Circuit Court of Appeals has construed this language as being absolute and totally inflexible. It found no balance in the Act's language. If a Federally authorized or funded project is in conflict with a listed species or its critical habitat, the project, to the extent it affects the species or its habitat, must be halted unless Congress grants a specific exemption or the Secretary changes the status of the species or redefines its critical habitat.

The Problem

In view of the general, technical, scientific realities, it would appear that Congress did not intend the words of the Act to be construed in such a narrow, rigid manner. Consider these few basic scientific realities:

— A species is any group of organisms with common characteristics which breeds separately. The difference between species is frequently slight and recognizable only to persons specifically trained in a given field.

— Scientists have identified about 2,000,000 separate species of living organisms (1.4 million animals and 600,000 plants).³ New species are being identified constantly—more than 10,000 new species are being discovered and described each year,⁴ and most scientists would probably agree that the current number for all existing species could be as high as 5,000,000.

— There are more than 600⁵ currently described species of freshwater fish in the United States and Canada alone, and 116⁶ of these are known darters.

3. Schreiner, Keith M. 1967. A Word About the Technical Bulletin, Endangered Species Tech. Bul., Vol. I, No. 1, USDI, U.S. Fish and Wildlife Service, p. 1.

4. Handler, Philip. 1970. Biology and the Future of Man. Oxford Univ. Press, New York, 936 pp.

5. Bailey, Reeve M., John E. Fitch, Earl S. Herald, Ernest A. Lachner, C. C. Lindsey, C. Richard Robins, and W. B. Scott. 1970. A List of the Common and Scientific Names of Fishes from the United States and Canada. American Fisheries Society Special Publication No. 6, 3rd ed. Washington, D. C. 150 pp.

6. Ibid.

-- In the substrate of a river, the rich soil of a corn field, on the floor of a forest, there may exist many thousands of different organisms often representing hundreds of species.

-- Species are constantly evolving from common ancestors. Over the ages, far more species have passed out of existence than are currently living on earth.⁷

-- Many living organisms have very limited ranges. It is conceivable that every river, every hillside, and every field could harbor an undescribed and perhaps unique species.

-- The Department of the Interior reports that there could be 200,000 "full" species plus as many as three to five times that number (600,000-1,000,000) of additional subspecies and individual populations that needed listing and protecting as threatened or endangered worldwide.⁸

Under the Act, any and every species in both the plant and animal kingdoms⁹—excepting only those insects which have been designated pests "presenting an overwhelming and overriding risk to man"—is entitled to protection. Indeed, the law directs the Secretary of the Interior to list any species or subspecies that is endangered or likely to become endangered in the foreseeable future. Furthermore, under the Department of the Interior's construction of the law, every new plant or animal discovered and described immediately qualifies for endangered status unless it can be shown that its true distribution is sufficient to ensure its perpetuation. An intensive search of many areas could reasonably be expected to produce one or more undescribed animal and/or plant species. Establishing the true distribution of a species, however, is a process which sometimes takes decades of scientific efforts, searching new areas, and matching new descriptions with catalogued specimens in museums.

A Scientific Perspective

Maintaining a diversity of life on earth is a valid and valuable goal. However, to gain perspective, one must appreciate the nature and origin of the diversity the earth now enjoys.

7. Estimates vary, but an average of totals would approximate some 500,000,000 species that have existed on the earth in the past.

8. Schreiner, Keith M. 1976. op. cit.

9. The Kingdom Protista, which includes bacteria, yeasts, molds, etc., is not covered by the Act.

As with the several hundred million species that have come and gone, the millions of species now extant are unevenly distributed across the earth's surface. In North America alone, there are vast differences in the diversity of life from one region to another. In the southern Appalachian and Ozark regions of mid-America, the diversity is greater than in any other regions of the continental United States and Canada. Although earthquakes and other major upheavals which changed river courses, opened new caverns, and altered soil compositions did occur in the southern Appalachians, they were relatively minor shocks which favored the evolution of more new and different species. For example, if a population of fishes of a single species lived in a stretch of river, and the course of the river's drainage was changed through a major upheaval in the earth's crust, then the population was split forever. Over time, each isolated population set out on an independent evolutionary course. Today, one ancient species may well have evolved into several separate, scientifically distinct species--distinct because of coloration, structure, and other physical differences brought on by biological acceptance and reproduction of mutations which proved beneficial to survival in a specific isolated habitat. Such was, and is, the constant, continuing story of evolutionary change.

In other regions, the story has been different. At times, many of the northern states and Canada were covered with up to 10 miles of ice in slow moving glaciers. There, the changes were more radical, and species that had existed were eliminated or forced to retreat. The glaciers scrubbed the landscape clean, eliminating all plant and animal life. Life reinvaded glaciated regions from the South. Species worked their way back into the streams and land areas establishing new ecological systems.

The contrast in regional geological histories is reflected in the number of species now living in different parts of the continent. In the United States and Canada, there

are 600 known species of freshwater fish.⁸ Some 300 of them are native to the southeastern United States,⁹ living in six major river valleys. Over 200 species of these fishes have been identified in Tennessee¹⁰ alone. Among the darters, the contrast is even more impressive; within a current total of 116 known species,¹¹ Tennessee has 77,¹² while only 11 are found in all of Canada.¹³

While regions vary in North America, all have an abundance of life. They have different life forms, different species, but the differences reflect another complex, scientific reality--the reality that many life forms are aggressive and will adapt to new surroundings and modified habitats. Life will often return naturally to areas where it has been driven out by natural or man-producing change. In one river in eastern New York, for example, the river hosts virtually no fish of any species during the summer months, a period of high pollution and limited oxygen.¹⁴ Yet, in the winter months, biologists have counted between 35 and 40 species in the same stream. The fishes leave when environmental factors present too much stress and they return when the conditions are suitable for life. On a different time scale and over wider areas, this same reinvasion has occurred throughout the world. All life in the northern edge of the United States and all of Canada represents a reinvasion of life from bordering regions following the glaciers.

8. Bailey, Reeve M., et al. 1970. op. cit.

9. Jenkins, R. E., E. A. Lacher, and R. J. Schwartz. 1971. Fishes of the Central Appalachian Drainage: Their Distribution and Dispersal. In: Perry C. Holt, ed. Distributional History of the Biota of the Southern Appalachians. Part III Vertebrates, pp. 43-117. Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

10. Etnier, David A. 1974. Unpublished. A Checklist of the Fishes of Tennessee. University of Tennessee, Knoxville, Tennessee.

11. Bailey, Reeve M., et al. 1970. op. cit.

12. Etnier, David A. 1974. op. cit.

13. Scott, W. B., and E. J. Crossman. 1973. Freshwater Fishes of Canada. Fisheries Research Board of Canada, Bulletin 184. Ottawa. 966 pp.

14. Raney, Edward C. 1977. Personal Communication Concerning Arthurkill River, New York. Ichthyological Associates, Inc., Ithaca, New York.

A final scientific reality which should be considered is the chain of life within a given ecosystem. Life forms support each other. From man's perspective, some are more critical to the scheme of things than others. Some forms constitute a basic source of food, some are regulators of systems, and still others apparently have little or no effect on the system.

A Social Perspective

Clearly, we must try to protect diversity of life on earth. Our own well-being depends upon it. However, if people are to live on earth, their needs must be met also.

Progress and the development of resources are vitally important to the desired quality of life. The development of energy is a good example. Energy is a driving force in today's civilization. It has been aptly described as the "currency of the future." Specifically, electric energy can be reasonably tied to the future of human life--and problems surrounding its production offer a clear illustration of the type of conflicts we face in the future.

Electricity is needed to clean the environment itself, to produce goods and services, and to free man to accomplish basic goals of society. But, if we produce electricity, we are going to modify habitats, and these habitats will contain endangered species. It may involve a pipeline passing through and separating individuals of a group, or altering the temperature of an entire reservoir forcing a change in species composition, or inundating a valley that harbors an isolated fish species separated from its relatives by a few hundred miles, or mining a remote mountain that supports an unknown plant life form.

Generally, when habitats are modified, conflicts will result, and many projects may be stopped or cancelled because of endangered species. These projects will represent authorized expenditures of public funds, but much more importantly, they will represent benefits to man--indeed, in each instance, if benefits had not exceeded the costs, the individual project would not have been proposed.

On the other side of the coin is a valid social concern for diversity of life on earth. It would be impossible to quantify the values involved. Most might simply say a unique life form is "priceless." But, so is man's future. Thus, we come to the final dilemma--a dilemma which calls for a balancing of priorities in an atmosphere which recognizes and understands scientific realities and, at the same time, gives appropriate weight to the needs of man.

Some of the needs of man are obvious. In a very practical and real sense, an energy crisis illustrates our civilization's dependence upon a variety of resources to support the production of electricity. Coal, uranium, gas, and oil are all needed as primary fuels, and lands and waters are disturbed in the recovery processes; and land and water resources must also be used for production and processing sites. Vast amounts of water are used in production processes for cooling, and still more land must be altered to accommodate transportation of energy to the consumer. Each element is a critical link in the chain of events necessary to provide people with jobs in industry, heat in homes, and thousands of other basic necessities.

The needs of man can be forcefully articulated, but how might we rationally evaluate the potential loss of a life form? Clearly, all life forms have scientific importance. But, because they have scientific importance does not automatically mean protection and preservation should be our paramount concern. Development concepts which seek to satisfy the needs of society might have to take precedence to ensure man's survival. To incorporate the needed balance, a rational social perspective should allow an evaluation of a species within a framework that recognizes its basic scientific importance but also evaluates its ecological status, its social or aesthetic qualities, and its economic importance.

In summary, social perspective calls for man to use a reasoning process that considers life in its totality and balances social and scientific factors. The social goal is to protect man and sustain an environment which supports him, recognizing that a desirable diversity of life is important.

Snail Darter (*Percina tanasi*)--A Case Study

The snail darter is a small fish. It is one of 116 species of darters¹⁵ which have been described. It was discovered in the Little Tennessee River and was proposed for listing as an endangered species even before it had been described for the scientific community. With limited knowledge of its distribution, it was classified endangered in 1975 because the habitat in which it was discovered was threatened with inundation by a dam nearing completion--the Tellico Dam--a project of the Tennessee Valley Authority. The dam, as in the case of most Federal water projects today, had been the focal point of controversy. The river had been used to stock trout, and local fishermen and canoeists had been fighting for its preservation since the project began in the mid-1960's. The recreational benefits before and after impoundment, of course, had been weighed along with other factors, including flood control, energy production, and economic development. The decision had been made to proceed with the project, and Congress appropriated funds, thus authorizing the project on the basis of its public benefit. But, the special interest groups still fought--using the Endangered Species Act of 1973 and the newly discovered darter.

A scientific perspective on the snail darter is complex. The species appears to have evolved after being separated from its ancestral relatives at some time during the past one hundred (100) million years when an upheaval caused an alteration in drainage patterns which isolated it from others within the population. It evolved into a slightly different but scientifically separate species.

At one time, the snail darter probably lived throughout the upper main Tennessee River and the lower reaches of its major tributaries--the Hiwassee, Little Tennessee, Clinch, Holston, and French Broad Rivers. To date, however, it has been collected only in the lower 17-mile stretch of the Little Tennessee River and in the main

15. Bailey, Reeve M., et al. 1970. op. cit.

Tennessee River as far as 12 miles below the confluence of the Little Tennessee and Tennessee Rivers. In addition, snail darters have been seen as far as 85 river miles downstream in the main Tennessee River. These latter sightings are not surprising, and they are not inconsistent with expert opinion as to the probable natural distribution of the species--a distribution which may take years to finally establish. Regardless, these sightings are not legally relevant under the Endangered Species Act as construed by the Sixth Circuit Court of Appeals, because the Secretary of the Interior has declared the "critical habitat" to be the portion of the Little Tennessee River just above Tellico Dam, and no weighing and balancing is allowed.

Most biologists aware of the situation now agree that, although the snail darter spawns in the Little Tennessee River, its young probably drift downstream through the sluice gates of the Tellico Dam into the Watts Bar Reservoir where they mature. With Tellico Dam already in place blocking upstream movement of fish, the snail darter population above the dam is sharply diminishing; and it is widely agreed that within its legal critical habitat, the snail darter will die out. This will certainly be true if the dam is not closed. If the dam is closed, this population may die out; but, on the other hand, it may survive, adapting to its new, altered environment and establishing a new breeding habitat upstream.¹⁶

Further, responding to provisions of the Act, biologists have transplanted 710 snail darters into three transplant sites on the Hiwassee River. These sites were carefully selected as most closely matching darter habitat of the Little Tennessee River. None of the transplanted fish showed any stress, and there were no mortalities observed among the transplanted fish. Approximately one year after the first fish were transplanted, juvenile snail darters, which had hatched in the Hiwassee River, were found in the deeper waters near the transplant sites.

16. TVA Environmental Impact Statements and other reports.

Later checks in the Hiwassee confirm that these younger snail darters were in a breeding condition, along with older fish which were originally transplanted. The older fish are reproducing for the second time in the Hiwassee. The conclusion that this transplant has been successful, to date, is appropriate. How long it takes for a transplant to be assured of continuing success with any species is a matter of judgment, but all conditions point to a very favorable result in this instance.

In summary, from a scientific perspective, the fate of the snail darter is, at worst, questionable and, at best, secure.

From a social perspective, the Tellico project means:

-- Electric energy to be produced by diverting water from Tellico through the existing Fort Loudoun turbines. This extra water will enable Fort Loudoun to generate an additional 200 million kilowatthours in an average year, enough energy to heat approximately 20,000 Tennessee Valley homes. Put another way, to produce this much electricity at oil-fired or gas-fired plants would require the burning of either 15 million gallons of oil or 1.8 billion cubic feet of natural gas every year.¹⁷

-- An additional 126,000 acre-feet of flood storage space. Most of the flood control benefits would be downstream at Chattanooga, where damage in a 1973 flood could have been further reduced by at least \$15 million if this additional storage had been available.¹⁸

-- Extending commercial navigation approximately 30 miles up the Little Tennessee River to what should become one of the best industrial sites on the Tennessee River System. By providing industrial sites with access to river transportation as well as improved rail and highway access, TVA estimates 4,000 basic industrial jobs, and 2,600 trades and services jobs could be created along the reservoir over a 25-year development period.¹⁹

17. TVA reports.

18. TVA reports.

19. TVA Environmental Impact Statements and reports.

-- A combination of jobs, land, and water which would offer new opportunity for a quality rural and urban living environment in a carefully planned industrial, recreational, and residential complex called Timberlake, which could grow to 30,000 people over its development period.²⁰

-- An excellent recreation lake, 16,500 acres in size, which because of a small seasonal drawdown would be available for full public use the year round. Some 3,700 acres of shoreline and adjacent areas would be set aside for public and private recreation development, and an additional 2,900 acres would be in open space, such as walkways and "green areas," or set aside for community recreation activity.²¹

And so the picture is complete in the Tellico case. The project is virtually complete, and over \$100 million in public funds have been spent to achieve the project's benefits. Here is a classic example of the need to balance the social demands on the one hand and the scientific demands on the other. The Sixth Circuit Court of Appeals, however, has construed the Endangered Species Act as foreclosing that balance. The species prevails according to the Court's interpretation of the Endangered Species Act regardless of the importance of and need for the project, regardless of the stage of completion, and regardless of the efforts taken to conserve the species.

Conclusion

The Endangered Species Act of 1973 properly expresses concern for all forms of plant and animal life. However, it has been construed so as to block all opportunity for balancing man's social and economic needs against his ecological needs. For the benefit of man's future and for the immediate public welfare, the Act should be revised to permit and encourage analysis of social, economic, and ecological needs in a framework which considers the scientific realities inherent in specific circumstances. It should provide for a flexible decision-making process that balances competing demands and produces rational decisions which accommodate both man and the life forms within the ecological systems upon which he depends.

20. TVA Environmental Impact Statements and reports.

21. TVA Environmental Impact Statements and reports.

VOTE: 28 to 2, 1 not voting
 85 to 6, 1 not voting

PASSED: Approved by
 Governor on
 March 31, 1977
 Filed for intro.
 3/2/77

HOUSE JOINT RESOLUTION NO. 37

by
 Watson & Henry
 Webb
 Stafford

A RESOLUTION to request the Tennessee delegation to the United States Congress to initiate and pursue legislation to enable the completion of the Tellico Dam Project.

WHEREAS, the Tellico Dam Project is currently over 90 percent complete; and

WHEREAS, over one hundred sixteen million dollars (\$116,000,000) has been spent on the Tellico Dam Project; and

WHEREAS, Tennessee has suffered a severe natural gas shortage due to the unusually harsh winter which threatens the health and welfare of the citizens of Tennessee and the Tellico Dam Project would produce enough electric power to heat 20,000 homes; and

WHEREAS, the Tellico Dam Project if completed will provide great economic benefits and employment opportunities for the citizens of Tennessee; and

WHEREAS, the Tellico Dam Project includes a new industrial park which will provide employment for many citizens of Tennessee and aid the general economy of the state; and

WHEREAS, the new industrial park will be the site of a barge terminal which will contribute to the economy of Tennessee and the nation by providing an inexpensive and efficient method of transporting goods; and

WHEREAS, the Tennessee Department of Transportation has spent in excess of one million dollars (\$1,000,000) in highway construction connected with the Tellico Dam Project; and

WHEREAS, Monroe County has appropriated money from county funds and has received other funds to apply to construction and development of the industrial park and port authority; and

WHEREAS, the Industrial Park and barge facilities will attract other industry and commerce to Tennessee; and

WHEREAS, the Department of Conservation has developed plans for a new state park on the shores of the new reservoir which will provide enjoyment for the citizens of Tennessee and economic benefits through the expected increase in the number of out-of-state tourists who may wish to utilize the proposed park; and

WHEREAS, the United States Court of Appeals for the Sixth Circuit has recently handed down a decision under the Endangered Species Act which will stop the Tellico Dam Project; now, therefore,

BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE NINETIETH GENERAL ASSEMBLY OF THE STATE OF TENNESSEE, THE SENATE CONCURRING, that the General Assembly requests the members of the Tennessee delegation to the United States Congress to initiate and pursue legislation which will allow completion of the Tellico Dam Project.

BE IT FURTHER RESOLVED, that a copy of this resolution be sent to each member of the Tennessee Delegation to the United States Congress.

VOTE: 29 to 2, 1 not voting
86 to 2, 3 not voting

PASSED: Approved by
Governor on March 31, 1977

Prefiled for intro.
3/9/77

HOUSE JOINT RESOLUTION NO. 53

Richardson-Bussart	Robinson(Washington)	Bragg	DePriest
Dixon	Davidson(Wayne)	Burnett(Fentress)	Elkins
Work	Davidson(Robertson)	Robinson(Davidson)	Murray(Franklin)
McWilliams	Watson	McKinney	Johnson
Burks	Henry	Gill	Lashlee
Pickering	Hillis	Sterling	Lanier
Bell	Miller	Moore	Naifeh
Ellis	Phillips	Small	

A RESOLUTION urging the President, Secretary of the Interior, Congress and TVA to take remedial action to provide a sensible solution to the problem created by the Endangered Species Act with reference to the Tellico and Duck River Basin projects (Normandy and Columbia Dams).

WHEREAS, The United States Department of the Interior has placed the snail darter fish and certain species of mussels and snails on the Endangered Species List pursuant to provisions of the Endangered Species Act; and,

WHEREAS, The snail darter and mussels have been litigated in lawsuits (Environmental Defense Fund vs TVA et al) in the U. S. District Court in Knoxville and the Sixth Federal Circuit Court of Appeals; and,

WHEREAS, These species were found subsequent to the approval of the required Environmental Impact Studies prepared by TVA, and,

WHEREAS, There is no proof that the Tellico Dam or the Duck River Project (Normandy and Columbia Dams) will destroy the snail darter, mussels or snails or that these species cannot exist in other streams; and,

WHEREAS, The Tellico, Normandy and Columbia Dams will provide improved water quality which will make other segments of the streams more favorable for the propagation of these species; and,

WHEREAS, The Tellico Dam and the water control system on the Duck River is absolutely necessary for economic growth and development in their respective locations; and,

WHEREAS, The people of the Duck River area have in good

faith committed themselves to pay TVA a sum of 16.2 million dollars over a 40 year period; and,

WHEREAS, This commitment is being met since January 1972 by a payment of five cents per thousand gallons on water being used in the Upper Duck River Watershed; and,

WHEREAS, The use of the Endangered Species Act to curtail worthwhile public works and endanger human life would be grossly unfair and a breach of faith with the citizens of the State of Tennessee and a general waste of effort and money; now, therefore,

BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE 90TH GENERAL ASSEMBLY OF THE STATE OF TENNESSEE, THE SENATE CONCURRING, That this Assembly urge the President of the United States, the Secretary of the Interior, Congress and the Board of the Tennessee Valley Authority to immediately consider remedial measures and adopt appropriate rules and/or legislation which would provide a sensible solution and permit these vital public projects in the State of Tennessee to continue.

BE IT FURTHER RESOLVED, That copies of this resolution be sent to the President of the United States, the Secretary of the Interior, each member of the Tennessee Congressional delegation and the Chairman of the Board of the Tennessee Valley Authority.

VOTE: 96 to 0
29 to 2

PASSED April 13, 1977

Intro. 3/7/77

SENATE JOINT RESOLUTION 33

by

Blank

A RESOLUTION to urge the Congress of the United States to amend the Endangered Species Act of 1973 to permit the completion of the Tellico and Duck River projects for the public welfare.

WHEREAS, The Endangered Species Act of 1973 has been used by certain individuals and groups to halt, delay, or otherwise prevent the completion of important resource development projects in the State of Tennessee and elsewhere; and

WHEREAS, These developmental projects, such as the Tellico project in east Tennessee and the Duck River project in middle Tennessee, will contribute immensely to the future welfare of the people of the State of Tennessee by providing needed jobs, electric energy, water supply, flood protection, recreation, and otherwise stimulating commerce and creating new employment opportunities for its people; and

WHEREAS, The completion of projects presently under construction, such as the Tellico project and the Duck River project, is in the best interest of the people of the State of Tennessee, and will avoid unreasonable waste of scarce natural resources and public funds already committed to these projects and fulfill the public needs and plans of local communities which have participated in and contributed towards their development; and

9011*

WHEREAS, The Senate and House of Representatives of the State of Tennessee believe that legislation should allow for responsible balancing of all factors relevant to providing a quality environment for man, which considers his economic and social needs as well as important ecological concerns; now, therefore,

BE IT RESOLVED BY THE SENATE OF THE NINETIETH GENERAL ASSEMBLY OF THE STATE OF TENNESSEE, THE HOUSE OF REPRESENTATIVES CONCURRING, That this Assembly does hereby memorialize, request, and recommend to the Congress of the United States to amend the Endangered Species Act of 1973 to provide for balancing the interests of preserving endangered species with the social and economic needs of the people, and to allow for the completion and use of the Tellico and Duck River projects which are vitally important to the people of Tennessee; and, further, this Assembly urges President Jimmy Carter to support and sign such changes into law.

BE IT FURTHER RESOLVED, That copies of this resolution be sent to all members of the Tennessee Congressional delegation and to President Jimmy Carter.

ENDANGERED SPECIES ACT OVERSIGHT

FRIDAY, JULY 22, 1977

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON RESOURCE PROTECTION,
Washington, D.C.

The subcommittee met at 9:35 a.m., pursuant to recess, in room 4232, Dirksen Senate Office Building, Hon. Malcolm Wallop presiding.
Present: Senators Wallop and McClure.

OPENING STATEMENT OF HON. MALCOLM WALLOP, U.S. SENATOR FROM THE STATE OF WYOMING

Senator WALLOP. The hearing will come to order.

On behalf of the Resource Protection Subcommittee, I would like to welcome you all here this morning on about the most civilized morning in Washington in the last 2 months that I can recall.

This morning we are going to hear from two panels of witnesses. The first panel includes seven members of State agencies which are involved in wildlife protection and will hopefully address the problems and progress they have encountered with the State implementation of the Endangered Species Act.

Following that, we will hear from seven representatives of various Federal agencies with significant involvement in the implementation of this law.

I am going to ask the indulgence of those two panels if they wouldn't please give two people the courtesy of allowing them a prior short statement. They were unable to be here at the hearings on Monday. We ask they be allowed to testify. That is Mr. John Thompson from the National Forest Products Association and Mr. Chris Farrand from the chamber of commerce.

There is, as is always sadly the case, a time limitation. We have to be finished by half past 12. I would ask you in each instance, if you possibly can, to summarize your statement and submit it for the record so that we can get to questions and answers and try to develop some useful information.

I would like to begin this morning by inserting into the record the prepared testimony of Mr. Earl Thomas who is the director of the Wyoming Game and Fish Department. Mr. Thomas was not able to be here, but he is one of those in the field whose judgment I respect enormously, and I would think these would be useful documents for the committee's future deliberations on this matter.

[The statement follows:]

STATEMENT OF EARL M. THOMAS, DIRECTOR, WYOMING GAME AND FISH
DEPARTMENT

Mr. Chairman, I am Earl M. Thomas, Director of the Wyoming Game and Fish Department. I am here representing that agency and wish to express our appreciation for the opportunity to appear and have our remarks entered into the permanent records of this hearing. I would like to take this opportunity to address myself to the subject of the proposed grizzly bear critical habitat, in an effort to present this agency's viewpoint regarding the U.S. Fish and Wildlife Service's proposal to designate the Yellowstone ecosystem as critical habitat for the grizzly bear.

A great deal of public and governmental concern and input has been gathered at various places and times around this country on the critical habitat proposal for the grizzly bear, and it is our understanding that a great preponderance of this attitude as expressed by those persons most immediately affected has been in rather vehement opposition to the designation of some 13 million acres in Wyoming, Idaho, and Montana as grizzly bear critical habitat. The Service has received many recommendations for additions to or deletions from the proposed critical habitat areas. In a letter dated November 16, 1976, Director Greenwalt, in a letter to Wyoming Governor Ed Hershler, stated as follows, "All of the comments were carefully evaluated, and some of the reasons for concern are fully appreciated, but our basic concepts of the critical habitat needs of the grizzly bear remain unchanged. A decision has been made to proceed with publication of a proposed rulemaking that is essentially identical to the draft." Must we infer from this that the collective minds of the U.S. Fish and Wildlife Service were already made up on this issue and that hearings conducted at Missoula, Mont.; St. Anthony, Idaho and Washington, D.C. were but "legal eyewash" and further exercises in frustration and futility which we have frankly experienced so frequently in the past?

The Federal Register, Volume 41, No. 215 of Friday, November 5, 1976, contained a proposed rulemaking to determine critical habitat for grizzly bear in 48 conterminous States of the United States and contained the following statement: "A critical habitat designation must be based solely on biological factors. There may be questions of whether and how much habitat is critical in accordance with the above interpretation, or how to best legally delineate this habitat, but any resultant designation must correspond with the best available biological data. It would not be in accordance with the law to involve other motives." "There may indeed be legitimate questions of whether, and to what extent, certain kinds of actions would adversely affect listed species. These questions, however, are not relevant to the biological basis of critical habitat delineations. Such questions should, and can more conveniently, be dealt with after critical habitat has been designated." We suggest that there was insufficient biological data available to the Fish and Wildlife Service at the time to justify the listing of grizzly bears as a threatened species. In fact, the information which was available from the game management agencies having grizzly bears under their jurisdiction was not sufficient to support the action listing the species as threatened and the best combined knowledge and records of the U.S. Forest Service and the several Departments of Game and Fish indicated that a threatened listing was neither necessary or desirable. All Federal references to grizzly bear consistently refer to a distribution of the species in the 48 conterminous States. This reference tends to fuzz up the issue and we must question the legitimacy of even talking about grizzly bear in those many States where they are not now threatened, they are not now rare, they are not now endangered, they are extinct. We submit that the classification of grizzly bear as a threatened species was a purely political and administrative decision and if there is data to justify classifying grizzly bear as a threatened species, we would ask where is it, from whence did it come and why is it not available to the state game management agencies having historical management responsibilities for wild species within their borders.

We would recommend that grizzly bears be immediately deleted from the list of threatened species and that henceforth, discussions concerning grizzly bear be confined at least to those remaining places and circumstances where the bears are known to presently exist.

Where, or what, is the U.S. Fish and Wildlife Service plan for the propagation, protection, control and management of grizzly bear which they have now assumed

jurisdiction over as a result of provisions in the Endangered Species Act of 1973? How does this plan, if such exists, differ from, improve upon or in any way more effectively administer grizzly bear problems than they have historically been handled by the responsible state wildlife agencies? It is our opinion that the very simple statutory, or regulatory, protection afforded the species by not hunting them is not enough. It is further our opinion, that the simple designation of 13 million acres in three States as, "critical grizzly habitat," is not a management plan.

Who wants how many grizzly bears where and by when? Once stated, how are these objectives to be reached and what affect upon current users of the thirteen million critical habitat acres will the designation portend?

We are told that the designation of critical habitat is not akin to establishment of a wilderness area or wildlife refuge. We are told that the designation of critical habitat does not automatically close an area to most human uses and we are told that a critical habitat designation applies only to Federal agencies and is essentially an official notification to Federal agencies that Section 7 of the Endangered Species Act applies only to Federal activities within that area. Frankly, in the absence of a well-articulated management plan which enumerates in detail, the policies and management practices to be applied to such a large critical habitat area, we are not sufficiently persuaded by these rather platitudinous assurances. If the designation of 13 million acres as critical grizzly bear habitat is to have no effect on current users and will not interfere with or force state wildlife management agencies to manage under dictums handed down from Washington, D.C., then what is the wisdom, logic or necessity of designating this great an area as critical grizzly bear habitat in the first place?

Management of the grizzly bear (*Ursus arctos*) in Wyoming has been made difficult by conflicting viewpoints and emotionalism. Wyoming is concerned with the perpetuation of the species and has and will continue to manage the grizzly bear on the basis of sound biological data. We would urge the U.S. Fish and Wildlife Service to cooperate with this Department in gathering data on grizzly bear population dynamics and movements and the effects of legal harvest.

As outlined in the Department's "Strategic Plan" it is our goal to:

"Manage grizzly bear in their natural habitats such that they will:

"1. Maintain themselves in sufficient numbers to provide for all type of ecological, recreational, esthetic, educational and economic uses.

"2. Not become injurious to human health or cause excessive damage to private property."

Further, we recognize the need for protection of habitat critical to the survival of this species. We suggest, however, that the designation of critical grizzly bear habitat should be accomplished after carefully considering data that are available concerning the species and the ramifications of such a designation with regard to the management of other wildlife occurring in northwestern Wyoming. We do not agree with the designation of the entire area artificially established as the Yellowstone Ecosystem. The designation of the entire known range of this species as critical to its survival is unnecessary and not substantiated by any available data of which we are aware.

However, the State of Wyoming does wish to perpetuate grizzly bear populations outside Yellowstone National Park. Grizzly bear have inhabited this area since Wyoming became a State. During this period, the grizzly survived in the face of licensed but unlimited hunting. Wyoming has, in the past 8 years, implemented and presently practices a much more restrictive program of hunting control and management. We point out that in 1968 and 1969 our Department declared a moratorium on hunting grizzly. Since that time only limited hunting has been allowed under restricted permits and on April 30, 1974, our Commission again placed a 2-year moratorium on hunting to take effect in 1975 and 1976.

The wintering population of grizzly bear in Wyoming outside Yellowstone was estimated at 80 in 1975. The Department's objective for 1980 in this area is 100 grizzly bear providing 200 hunter recreation days at a rate of one bear per 40 days of hunter effort.

The Wyoming Game and Fish Department has defined "Critical Grizzly Bear Habitat" as an area of continuous natural habitat essential for the maintenance of a self-sustaining population which will guarantee the perpetuation of the species. It is the recommendation of this Department that the following described geographic area lying within the State of Wyoming be identified as "Critical Grizzly Bear Habitat": That portion of Yellowstone Park lying within the

borders of the State of Wyoming. We suggest that Yellowstone Park meets the requirements of our definition as well as the requirements defined in the Endangered and Threatened Species Act (Federal Register, Vol. 40, No. 78, pp. 17764-65, April 22, 1975).

Our justification for designating Yellowstone Park as "Critical Grizzly Bear Habitat" is as follows:

1. Yellowstone supports a viable population of grizzly within the park boundaries as well as providing a nucleus population for surrounding areas in Wyoming. The natural mortality of the elk, bison and other animals of Yellowstone Park furnish an important food source during the spring period prior to annual vegetative growth.

2. The part boundary provides the best line that is enforceable as a fully protected area.

3. A wilderness buffer zone nearly surrounds the park within Wyoming. This wilderness has adequate regulation and restrictions to protect the park population of bears, i.e., no timbering, vehicle travel, etc.

4. Establishment of a highly restrictive geographic area outside of Yellowstone and within Wyoming as critical grizzly habitat could adversely affect other uses in the area (e.g., cattle grazing, camping, outfitting, etc.) and is not essential to perpetuation of the species.

5. During the past few years it has consistently been the opinion of John and Frank Craighead that there should be limited hunting of grizzly outside Yellowstone Park to minimize bear-human conflicts. For support we quote from Wyoming Game and Fish Commission meeting minutes where Frank Craighead was invited to advise the Commission on grizzly management. The following are excerpts from these meeting minutes:

April 30, 1968—"Frank Craighead asked the Commission to recognize the grizzly as a trophy animal and that it be hunted on a restricted basis. He feels it would not be wise to completely close the hunting season for extended periods of time because bear numbers would build up and cause trouble to stockmen and there is a problem of bear-human relationships . . . Census within Yellowstone National Park showed 174 grizzly. Mr. Craighead believes this number to be the carrying capacity of Yellowstone National Park."

March 3, 1969—"Mr. Frank Craighead advised that the grizzly should be hunted on a restricted basis outside of Yellowstone National Park."

April 29-30, 1974—"Mr. Craighead feels that the grizzly may be in critical condition due to high mortalities on this population which reproduces so slowly . . . He does not favor placing the bear on the endangered species list unless it becomes absolutely necessary . . . There is a need to control this large and dangerous animal when and where it is necessary. The best and most effective way to accomplish this control is by limited trophy hunting."

6. After thoroughly reviewing all the available research data for the Yellowstone region, the Committee on the Yellowstone Grizzlies, National Academy of Sciences determined that a population of 234 grizzlies in the Yellowstone Ecosystem was a conservative estimate and that there was no indication that the grizzly population density in Yellowstone was significantly lower than in other areas where viable populations exist. They also concluded that the population model used by the Craigheads was "rigid", "unrealistic" and would lead to extinction irrespective of what initial population figures were used because of "no compensatory mechanisms are built into the model." The committee stated, "Our evidence does not suggest that there are compensatory mechanisms adequate to maintain the Yellowstone population under impact of continued mortality as high as that which occurred in the years 1970-72." However, through efforts of all State and Federal agencies, in the Yellowstone region mortalities decreased greatly in 1972, 1973 and 1974. In 1975 no known mortalities occurred in the Yellowstone Ecosystem. In conclusion, the committee made the strong statement that "there is no convincing evidence that grizzly bears in the Yellowstone Ecosystem are in immediate danger of extinction." Since the bulk of the committee's data pertained only to the Park, it would then be reasonable to conclude that, with precautions to avoid excessive and unnecessary mortalities, the Park's grizzly population is stable and able to maintain itself.

Thank you for this opportunity to address the subcommittee.

Senator WALLON. With that, let's begin by having Mr. Thompson of the National Forest Products Association come up.

STATEMENT OF JOHN THOMPSON, NATIONAL FOREST PRODUCTS ASSOCIATION

Mr. THOMPSON. Thank you. I will keep my comments very brief and submit a full written statement that I would like to have inserted in the record.

My name is John Thompson. I am currently corporate liaison for land resources for the Georgia-Pacific Corp., located in Portland, Oreg.

My formal educational background is oceanography. I have been employed in resource management and environmental protection by industry, academia, government, and the Audubon Society for several years.

I am here today representing the National Forest Products Association, headquartered here in Washington, D.C. It is a federation of 26 regional and wood-product associations and several direct member companies. We represent timber growers and manufacturers and wholesalers of wood products throughout the country.

Early in 1974, NFPA established a forest wildlife task group made up of industry specialists with expertise in wildlife ecology. Their statement is attached to the end of my statement today.

I think it is safe to say that there are very few people who quarrel with the idea of taking reasonable and appropriate actions to protect endangered species. We note, however, that the sense of absolutism embodied in the Endangered Species Act will inevitably create conflicts with other valid and desirable resource goals.

To date, the immediate impacts on private forest lands, caused by the initial stages of the implementation of the Endangered Species Act, have been limited. At this time, it is also difficult to quantify the impact that the Endangered Species Act will have on the multiple-use objectives of Federal land management plans.

However, we do firmly believe that the Endangered Species Act does pose a very real and ominous threat to the practice of scientific forest management on both public and private lands.

As of January 1977, 639 species of foreign and domestic animals were listed as endangered or threatened. We really believe this is just the beginning. By October of 1975, the Department of the Interior received petitions requesting the listing of 23,962 species of domestic and foreign plants and animals. We can be assured many more will be coming forth from the States.

In the State of California alone, the Department of Fish and Game has developed a list of 127 snails and slugs considered to be endangered. When you look at 639 that are already officially listed, of those, only one of them is a snail and from a foreign country. So just to look at what is coming from one State, you can be assured there will be many, many more applications.

As additional species are identified as threatened and endangered, the list will increase. We also believe that the instances of conflicts will increase.

Section 7 of the Endangered Species Act of 1973 requires Federal agencies to protect endangered and threatened species and insure the actions authorized, funded, or carried out by them do not jeopardize

the continued existence of endangered or threatened species. Federal activities cannot result in the destruction or modification of habitat of species endangered or threatened.

In implementing section 7 of the act, the Fish and Wildlife Service promulgated draft regulations on January 26, 1977, which contained a provision making it mandatory that a Federal agency formally consult with the Fish and Wildlife Service if it determines that its activities or programs may affect listed species or their habitat.

The consultation requirements appear to set up a cumbersome process likely to further delay, complicate and, in some cases, thwart Federal multiple-use resource management programs. Under section 7 of the Endangered Species Act, Federal agencies are required to insure that their actions do not jeopardize endangered species.

It is quite another matter, however, for these agencies to be required to consult with the Fish and Wildlife Service about every activity or program which might conceivably impact such a listed species. In many cases agencies such as the Forest Service have as much in-house expertise to make an evaluation as the Fish and Wildlife Service.

An additional problem is created by the fact that the Fish and Wildlife Service is charged with a primary duty to preserve and manage fish and wildlife resources and is likely to oppose any activity which could conceivably jeopardize this objective in any way.

Federal land managing agencies carry out their responsibilities and manage the national resource lands adhering to the concept of multiple-use management, working to achieve the best possible balance between all uses of the public lands.

This concept was most recently supported by Congress in the National Forest Management Act of 1976 and the Federal Land Policy and Management Act of 1976. The language of the Endangered Species Act, and most particularly the language in section 7, offers no mechanism for achieving balance between the preservation of endangered species and other desirable and perhaps even more urgent national goals.

We feel that the Endangered Species Act may work to undermine the concept of wise resource management under the multiple-use system. We recommend that the committee give consideration to amending the language of section 7 to allow Federal agencies to pursue multiple-use objectives while still implementing measures to avoid significant, direct, adverse effects of their actions on the conservation of endangered or threatened species or on the habitat of such species which is determined to be critical.

In addition, the language of section 7 we feel should address only federally funded or implemented actions and not those actions carried out on private lands by private parties subject to some Federal controls through various permit and unrelated funding requirements.

In section 3(14) of the act, the term "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." It is possible that the definition of "take" could be construed to prevent normal land management activities on private land if it can be shown those activities, when carried out, might damage critical habitat or disturb individuals of a listed species.

The Fish and Wildlife Service has defined harm to mean: "an act or omission which actually injures or kills wildlife, including acts which annoy it to such an extent as to significantly disrupt essential behavioral patterns, which include, but are not limited to, breeding, feeding or sheltering; significant environmental modification or degradation which has such effects is included in the meaning of 'harm.'"

With my company, at 4½ million acres of forest lands in the United States and a large number of species, we can expect we would be in violation of the act with one of those species on our lands, just conducting normal land use activities, and we may be prohibited from doing so.

We also feel that there needs to be some refinement to the definition of the term "species." Under the act, it says species and subspecies and all lower taxa. I think it came out pretty clearly on one of the technical panels yesterday, or the day before, where two scientists were in complete disagreement as to what constitutes species and what doesn't. One maintained that he could find an endangered species anywhere in the southeast under the definition of the act to stop a dam. The other one disagreed with him.

In any event, unfortunately, it looks as if it will have to be a scientific decision the committee will have to rule on. Someone has to define what a species is. We hope we can keep it at the higher, straight species level.

I realize time is getting on. We are very much in support of not only the concept of trying to include NEPA in the species listing process so that environmental impact statements are written as applications are made for adding species to the list, but we also think the idea behind the Executive Order 11821 might not be a bad idea when trying to list the species.

I think the idea was good, but it appears to us that the Federal agencies have for the most part thwarted the intent of that Executive order in trying to look at some of the economic impacts of their actions.

In summary, we wish again to emphasize our support of the concept of the preservation of threatened and endangered species through the use of reasonable programs directed toward their preservation.

However, we are of the belief that as currently interpreted, the Endangered Species Act of 1973 will precipitate unnecessary controversy and conflict. The single purpose mandates of section 7 appear to override other programs and goals essential to the well-being of this Nation. The broad interpretation of the term "take," as well as the practice of giving endangered species status to subspecies and lower taxa, will most assuredly lead to rejection, by private landowners, of the otherwise worthy goals of the act.

Litigious groups have demonstrated a propensity to utilize single purpose laws, such as the Endangered Species Act, as a tool to further interests and accomplish objectives unrelated to the worthy intent behind the passage of such laws. We feel that refinements in the Endangered Species Act are needed. We would much prefer to see these refinements made by the Congress rather than the courts.

Thank you again for the opportunity to testify. We stand ready to help in any way we can.

Senator WALLOP. Thank you, Mr. Thompson. I have a couple quick questions.

It is well and good for you to suggest to us that we might redefine the species, but it is you that has been in academia and us who are trying to make the decision. Would you give us a definition of species?

Mr. THOMPSON. Certainly.

Perhaps in the interest of time, if I could submit that to you in writing.

Senator WALLOP. That would be fine.

Mr. THOMPSON. It would be the general biological interpretation of what a species is.

What you are trying to do is just limit it to general species. But through the taxonomic process, you can keep breaking it down into color variations or even locations.

There seems to be a direct proportion, because the more taxonomists there are, the more species you wind up with.

Here is the definition. This is a general biological definition. The definition of species should be refined to mean a group of physically similar organisms capable of interbreeding but generally incapable of producing fertile offspring with breeding organisms outside the group, which is the biological definition. It is the best I can do.

Senator WALLOP. Have any traditional forest activities thus far been curtailed because of the application of the Endangered Species Act?

Mr. THOMPSON. No, not many. I mean, there have been some approaches to it; but we don't have to wait for the plane crash to know it is going to hurt when it comes down.

For instance, the red cockaded woodpecker listed is an endangered species through a large area of the South. My company and a lot of other companies have worked on a program to preserve the old growth pine the bird needs to reproduce.

I think it is an example of the problems that the absolutism of this act presents, what kind of a reaction you are going to get from the public.

My company had on its own put out an advertising program backing the concept of protection of endangered species, like the bald eagle posters. In one of our ads we support the concept of protecting endangered species; "Write to us and we will send you a list of the endangered species."

Since the passage of the 1973 Endangered Species Act and the problems we see inherent and coming down the road, if it is not modified for some kind of balance. I had to advise the company to withdraw that ad. We can no longer say send for the list of endangered species and we will send you the list. With the law, no one knows how long it is going to be.

Senator WALLOP. But surely, if your company had a species like the red cockaded woodpecker who was endangered and whose habitat is critical, and I think that is the part of this act which perhaps the Fish and Wildlife Service used less than average judgment on by defining critical habitat, but surely your company would try to sustain the critical habitat for a species like that.

Mr. JOHNSON. In some instances, yes. It depends on the circumstances. It is like asking, "Are you in favor of endangered species?" Which one? And yes, but what are the consequences?

If you are talking about drawing a circle around 1,000 acres on private timberland and the critical habitat and the nature of that species is such that the two aren't compatible, I would think condemnation proceedings and payment for that taking of the private property would be in order, rather than relying upon a private landowner to provide habitat for wildlife, if it stops other income potential of the land.

Senator WALLOP. Thank you. We may have, after others have had a chance to read your testimony, some more questions. I would appreciate it if you had time to answer those for the record.

Mr. THOMPSON. Certainly.

[Mr. Thompson's prepared statement follows:]

STATEMENT OF
JOHN THOMPSON
REPRESENTING THE
NATIONAL FOREST PRODUCTS ASSOCIATION
BEFORE THE
RESOURCE PROTECTION SUBCOMMITTEE
OF THE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
JULY 22, 1977
HEARINGS ON THE IMPLEMENTATION OF THE
ENDANGERED SPECIES ACT OF 1973

I am John Thompson, Corporate Liaison for Land Resources for the Georgia-Pacific Corporation, located in Portland, Oregon. My educational background is in oceanography, and I have been employed in resource management and environmental protection by industry, academia, government and the Audubon Society for several years. I am here today representing the National Forest Products Association, headquartered in Washington, D. C. NFPA is a federation of 26 regional and wood product associations and several direct member companies. We represent timber growers and manufacturers and wholesalers of wood products throughout the country.

Our industry is vitally concerned with timber management on all United States commercial forest lands. We are concerned with constructive policies and programs affecting timber growth and harvest on federal lands, on lands owned by the forest industry, and on non-industrial private lands. The forest products industry supports federal, state, and local programs and projects which will enable productive management of all our nation's forest lands while, at the same time, protecting environmental values.

Early in 1974, NFPA established a Forest Wildlife Task Group made up of industry specialists with expertise in wildlife ecology. The Task Group serves in a technical advisory capacity to help the forest industry get background information necessary to accommodate wildlife management considerations in timber operations. The Task Group also acts to survey issues and make recommendations to the forest products industry with regard to endangered species. The Group has been following with great interest the implementation of the Endangered Species Act with respect to both plants and animals. The Wildlife Task Group developed a Wildlife Policy Statement which was subsequently adopted by the forest industry. A copy of this Policy Statement is attached to my written statement.

As a prelude to my more specific comments on the Endangered Species Act, I think that it is safe to say that there are very few people who quarrel with the idea of taking reasonable and appropriate actions to protect endangered species. We note, however, that the sense of absolutism embodied in the Endangered Species Act will inevitably create conflicts with other valid and desirable resource goals.

The forest products industry fully supports the concept of taking reasonable measures to protect species which are threatened with extinction due to man's activities. We recognize that special management provisions must often be utilized to protect endangered and threatened species on public lands. When dealing with endangered species characteristic of late successional forest communities, such measures may impact forest management practices by requiring long rotations and/or selective cutting practices. However, some species of early successional stages may be endangered due to exclusion of natural disturbances, such as fire. Forest management practices can be used to encourage and promote the recovery of an endangered

or threatened species by creating conditions which approximate these natural disturbances.

To date, the immediate impacts, on private forest lands, caused by the initial stages of the implementation of the Endangered Species Act have been limited. At this time, it is difficult to quantify the impact that the Endangered Species Act will have on the multiple-use objectives of federal land management plans. However, the the Endangered Species Act does pose a very real and ominous threat to the practice of scientific forest management on both public and private lands.

As of January, 1977, 639 species of foreign and domestic animals were listed as endangered or threatened . We believe this is only the beginning. By October, 1975, the Department of the Interior received petitions requesting the listing of 23, 962 species of domestic and foreign plants and animals. Currently, more petitions are being developed for submission to the Fish and Wildlife Service (e.g., the California Division of Fish and Game has compiled a list of 127 snails and slugs considered to be rare or endangered within the state. Only one snail is listed on the federal list). Scientists now estimate, by extrapolation, that the planet holds on the order of 10,000,000 species, of which less than half have been identified.

As additional species are identified as threatened and endangered and added to the list, instances of conflicts between endangered species and forest management activities will increase greatly. It is in this context that I am here today to offer more specific comments on the Endangered Species Act and suggestions for refinement of the concepts embodied in the Act. The following comments will be specific to those portions of the Act which the forest industry believes are in greatest need of change.

1. Refinement of Section 7 Requirements

Section 7 of the Endangered Species Act of 1973 requires federal agencies to protect endangered and threatened species and insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of endangered or threatened species. Federal activities cannot result in the destruction or modification of habitat of species endangered or threatened. The Secretary of the Interior, after consultation, as appropriate, with the affected federal agencies and states, determines which areas of habitat are critical.

In implementing Section 7 of the Act, the Fish and Wildlife Service promulgated draft regulations on January 26, 1977, which contained a provision making it mandatory that a federal agency formally consult with the Fish and Wildlife Service if it determines that its activities or programs may affect listed species or their habitat. Under the regulations, the Fish and Wildlife Service may, by request, require formal consultation if not asked to do so by an agency.

The consultation requirements appear to set up a cumbersome process likely to further delay, complicate and, in some cases, thwart federal multiple-use resource management programs. Under Section 7 of the Endangered Species Act, federal agencies are required to insure that their actions do not jeopardize endangered species. It is quite another matter, however, for these agencies to be required to consult with the Fish and Wildlife Service about every activity or program which might conceivably impact such a listed species. In many cases, agencies such as the Forest Service have as much, or more, expertise to make such an evaluation than the Fish and Wildlife Service.

An additional problem is created by the fact that the Fish and Wildlife Service is charged with a primary duty to preserve and manage fish and wildlife resources, and is likely to oppose any activity which could conceivably jeopardize this objective in any way. Multiple-use agencies, such as the Forest Service and the Bureau of Land Management, are more likely to effectively balance their responsibilities to other resource uses and values when determining the likely impact of a proposed activity on a listed species.

The problem of consultation and cooperation between the Fish and Wildlife Service and other federal land managing agencies reflects a significant problem with the language of Section 7. Federal land managing agencies carry out their responsibilities and manage the national resource lands adhering to the concept of multiple-use management, working to achieve the best possible balance between all uses of the public lands. This concept was most recently supported by Congress in the National Forest Management Act of 1976 and the Federal Land Policy and Management Act of 1976 (BLM Organic Act). The language of the Endangered Species Act, and most particularly the language of Section 7, offers no mechanism for achieving balance between the preservation of endangered species and other, desirable and perhaps more urgent, national goals.

We feel that the Endangered Species Act may work to undermine the concept of wise resource management under the multiple-use system. We recommend that the Committee give consideration to amending the language of Section 7 to allow federal agencies to pursue multiple-use objectives while still implementing measures to avoid significant, direct, adverse effects of their actions on the conservation of endangered or threatened species or on the habitat of such species which is determined to be critical. In addition,

the language of Section 7 should address only federally funded or implemented actions, and not those actions carried out on private lands by private parties subject to some federal controls through various permit and unrelated funding requirements.

Also of great importance to the forest industry are the operational definitions of "habitat," "destruction," and especially, "modification." The Fish and Wildlife Service has attempted to develop and publish broad definitions of these terms through the Federal Register process. We feel that this is appropriate. However, given the recent history of environmental litigation and the rigidity of the language of Section 7, there is some question as to whether the agency definitions will be permitted to stand. It is not difficult to conceive of a court decision interpreting the term modification very rigidly. Courts could interpret the law to require that there can be no modification of critical habitat through actions of the federal government. Section 7 does not say adverse modification or significant modification, just modification.

As an example of the problems caused by the rigidity of the statutory language in Section 7, it could be contended that controlled burning represents a modification of habitat which is prohibited if such habitat is determined to be critical habitat of endangered species listed pursuant to the requirements of the Act. In the case of the Kirtland's Warbler, inhabiting federal lands in Michigan, controlled burning is absolutely necessary to maintain an area with a viable Kirtland's Warbler population. Such a burning, however, is a modification of the critical habitat of the Kirtland's Warbler.

Literally, Section 7 could prohibit any change of any type of habitat regardless of the degree of impact (if any) on the endangered species.

2. Refinement of the Term "Take"

In Section 3(14) of the Act, the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. It is probable that the definition of take could be construed to prevent normal land management activities on private land if it can be shown those activities, when carried out, might damage critical habitat or disturb individuals of a listed species. Indeed, in its implementing regulations the Fish and Wildlife Service has adopted the interpretation by defining the term "harm" to mean:

"(A)n act or omission which actually injures or kills wildlife, including acts which annoy it to such an extent as to significantly disrupt essential behavioral patterns, which include, but are not limited to, breeding, feeding or sheltering; significant environmental modification or degradation which has such effects is included in the meaning of 'harm' ."

Through this broad interpretation, a private landowner would either be prohibited from carrying out normal land management activities or be subject to penalties of one year in prison and/or a \$20,000.00 fine, as a result of possible inadvertent impacts on endangered species. Restrictive interpretation of the term would result in a form of single purpose land use planning with the well-being of a member of an endangered species as the sole criterion for such planning.

We concur that strong regulations are needed to prevent the malicious harassment of endangered species. However, we urge Congress to refine the term "take" so as not to preclude normal land management activities on private lands.

3. Refinement of the Terms "Species," "Threatened Species," and "Endangered Species"

The terms "endangered species," and "threatened species" are defined to include any species which is in danger of extinction throughout all or a

significant portion of its range. A species which is in danger of extinction throughout all of its range is in need of some form of protection. However, many species have, over time, shifted the pattern of their spatial distribution and normal ranges. In some cases, this is a normal phenomenon based on long-term climatic conditions or other situations. In other cases, it is due largely to the impact of man's activities on the habitat of such species in a particular local. In either case, however, it is important to note that the species is not in imminent danger of extinction since there are viable populations in other portions of the range. Hence, the protection effort is not needed to save a species from vanishing entirely from the face of the earth.

In some cases, political boundaries and other factors result in a species being considered rare in a certain geographic area. Neither political boundaries, nor rarity (independent of endangerment) should be used as criteria for invoking the jurisdiction of the Act.

Although the forest industry has no quarrel with reasonable efforts to preserve species which are threatened or endangered in a portion of their range, the requirement of the Act to preserve such species in all portions of their range limits the flexibility that can be brought to bear in implementing the Act. We feel that the Act should be refined to distinguish between those efforts and requirements needed to preserve a species that is endangered throughout its range, and those that are needed to preserve a species threatened only in a particular area. The Act could then concentrate efforts on the preservation of species that are endangered nationwide. Such a distinction will make the implementation of the Act more realistic and help to avoid inevitable conflicts which will occur when the preservation of endangered species is confronted with other resource goals.

The directive to preserve subspecies and smaller taxa of fish, wildlife, and plants in common spatial arrangement that interbreed when mature, is overly restrictive. In many organisms, subspecies variations are neither clear nor distinct and are subject to conflicting scientific views. Subspecies variations can be numerous yet extremely subtle. The definition of species should be refined to mean a group of physically similar organisms capable of interbreeding but generally incapable of producing fertile offspring through breeding with organisms outside the group. In this context, sufficient genotypic variation would be preserved but the unnecessary problems in distinguishing between extremely similar subspecies would be eliminated.

4. The Need for Inflationary Impact Statements and Economic Analyses for Endangered Species Conservation

In Section 3(2) of the Act, the definition of the term "conserve" should include a proposition that requires an analysis of the economic feasibility of any proposed actions taken to conserve an endangered species. In some cases, the cost of a particular conservation activity may require the use of alternative measures. We feel that any proposal for listing or delisting species, for delineating critical habitat, and for proposing conservation measures in which significant economic costs are involved, or which involve the significant curtailment of federal programs or other economic activities should be accompanied by inflationary impact statements.

Executive Order 11821 requires that all major legislative proposals, regulations, and rules emanating from the Executive Branch include a statement certifying that the inflationary impact of such actions has been carefully considered. The order further directs the Office of Management and Budget to develop criteria for the identification of major legislative proposals, regulations, and rules. This was subsequently done through Circular Number A-107, dated January 28, 1975. Agencies were directed

to develop procedures for the evaluation of proposals by the application of criteria described in the circular. The following considerations must be documented for actions qualifying as described above: (1) cost impact on consumers, business markets, or federal, state, or local governments; (2) affect on productivity, wages, businesses, or government at any level; (3) affect on competition; (4) affect on supplies of important materials, products, or services; (5) affect on employment; and (6) affect on energy supply or demand.

To date, it appears as though many federal agencies have circumvented the Executive Order by deeming few of their activities as qualifying for inflationary impact statements. Activities carried out pursuant to the Endangered Species Act which have significant economic impacts should be accompanied by an inflationary impact statement.

5. The Need for Adequate Data and Environmental Analysis

Due to the potential for the disruptive impact of listing a species, it is imperative that we obtain adequate information on species thought to be endangered or threatened, including the range of the species and those specific factors causing the species to be threatened or endangered.

An immediate and significant impact on our industry of listing endangered species which do not qualify, or designation of critical habitat which is unwarranted, would be the unnecessary curtailment of timber management activities on federal lands. Approximately 30 percent of the softwood sawtimber used in the United States comes from federal lands. In many parts of the country, local communities are totally dependent upon federal timber management for their raw materials and economic stability. This demonstrates the considerable importance of compiling endangered species lists and critical habitats using the best available information in a

thorough process of environmental assessment and analysis with full public participation from all interested and affected parties.

The forest industry followed with great interest the development of the Endangered Plant Project by the Smithsonian Institution in 1975. The public was refused access to the data upon which the proposed Smithsonian lists were based. Such information was refused not only to the public, but also to botanists and taxonomists and others who need such information to comment on the proposed species. These specialists were put at a significant disadvantage by being refused access to existing information on a species. It would have been extremely useful during the period of time after the Smithsonian list was made available in January, 1975, if all qualified authorities had been given the opportunity to review and critique, as well as to add to, the information which was assembled by the Smithsonian. The information was also denied to federal and state agencies that needed it to assess the impacts of planned projects which may have jeopardized endangered plant species. Refusal by the Smithsonian to make this information available was counterproductive.

It is in this context of the need for detailed analysis and full public disclosure of the data used for listing species and designating critical habitat, that we would support the preparation of an Environmental Impact Statement when proposals to list species or designate critical habitat would constitute a major federal action under Section 102(c) of NEPA. An EIS requirement would insure a detailed environmental analysis of the actions surrounding the listing of an endangered species and full public review of the processes of adding species to the list and designating critical habitat.

The Fish and Wildlife Service has not prepared Environmental Impact Statements to support species listings or critical habitat designations. The

Service has contended that such activities do not constitute major federal actions requiring the preparation of an EIS. This is without foundation. If this situation continues, we support S. 363, introduced by Senator McClure, which would require EIS preparation by adding a Section 18 to the Endangered Species Act.

Summary

We wish again to emphasize our support for the concept of the preservation of threatened and endangered species through the use of reasonable programs directed toward their preservation. However, we are of the belief that, as currently interpreted, the Endangered Species Act of 1973 will precipitate unnecessary controversy and conflict. The single purpose mandates of Section 7 appear to override other programs and goals essential to the well-being of this nation. The broad interpretation of the term "take," as well as the practice of giving endangered species status to subspecies and lower taxa, will lead to rejection, by private landowners, of the otherwise worthy goals of the Act.

Litigious groups have demonstrated a propensity to utilize single purpose laws (such as the Endangered Species Act) as a tool to further interests and accomplish objectives unrelated to the worthy intent behind the passage of such laws. We feel that refinements in the Endangered Species Act are needed. We would like to see these refinements made by Congress rather than the Courts.

We appreciate the opportunity to offer our views on the implementation of the Endangered Species Act, commend the efforts of the Committee on their work thus far in overseeing its implementation, and offer our services in any way we can to aid in efforts to refine the Endangered Species Act and assure its continued implementation.

WILDLIFE POLICY STATEMENT OF THE FOREST PRODUCTS INDUSTRY
(Submitted by National Forest Products Association)

PREAMBLE

One third of the land area of the United States is forest. The nation's forest lands are important to the social, economic, and spiritual wellbeing of the American people.

The forest industry of the United States has the responsibility of providing wood products for domestic use and foreign trade, manufactured at a reasonable cost from the timber resources of the nation's forest lands. While the forest products industry is primarily concerned with growing and harvesting timber, it understands and appreciates the importance of and the need for other uses of forest land. Wildlife habitat is one of these.

Because wildlife values are difficult to quantify, because the ecological principles governing wildlife populations are not widely known, and because the attitude of the forest products industry towards wildlife is generally misunderstood, the following is a statement of policy and position of the forest products industry on wildlife and the use of forest lands.

WILDLIFE AND THE FOREST COMMUNITY

The forest industry understands "wildlife" to mean every member of the animal kingdom, except man. Included are all mammals, fish, birds, amphibians, reptiles, mollusks, crustaceans, arthropods or other invertebrates which are not domesticated and are free and independent of man. Forest wildlife are species of the foregoing which live in forests and on forest lands for all or part of their lives.

The forest is a unique wildlife habitat because of its three dimensional character. Some animals live in the upper tree tops, and their ability to survive is directly proportional to the height above ground of their habitat. Other species can survive only in thickets of brush or young trees, some never leave the ground, even to the extent of living in the soil and still others range throughout the forest.

The forest, like all natural biological communities, is dynamic. All trees are temporary residents, and even the most stable forest is subject to change because of natural forces of wind, fire, insects, and disease. The modifications created by these forces make the environment less suitable for some species of vegetation and more suitable for others. These dynamic changes also affect wildlife species. Human activities also contribute to the dynamism of the forest to the extent that they resemble those created by natural events.

No statement of the effect of human activities on forest wildlife can be meaningful unless the basic ecological principles governing forest disturbance and plant succession relative to the reaction of wildlife species are understood. An appreciation of the direct and indirect effects of the three-dimensional forest structure is vital to this understanding.

POSITION OF WILDLIFE

The forest industry recognizes the right of each landowner to establish single or multiple land use objectives. It is reasonable to expect that some landowners may wish to manage their lands primarily for the production of timber with wildlife as an incidental resource. It is also reasonable to expect others, especially governments, to manage their lands so that wildlife habitat management is coordinated with other uses and sometimes may be a primary use. In either event conflicts should be recognized if land use priorities are established for individual tracts of land.

When wildlife habitat is to be provided as a primary use or in concert with other uses, the actual output of timber may be less than the productive potential of the land. In establishment of priorities for forest land use, each landowner should recognize the use or uses which will maximize the sum of the human benefits available from the land. Before priorities are set, the impact of these land use determinations on both short and long term vegetative composition of a forest property and the resulting impacts on the members and kinds of wildlife species present on the area should be known. Each owner should then determine the effect the anticipated change in wildlife habitats and populations may have on the optimization of human benefits. A landowner should be individually responsible for determining land use priorities for his property.

It is recognized that state regulated harvest of game animals through hunting is a legitimate tool for managing wildlife population and in providing recreational opportunities on forest lands. It is also recognized that in certain situations animal numbers will need to be controlled artificially to prevent undue damage to other important resource values.

MANAGEMENT PLANS

Any land use objectives which recognize wildlife values at any level above incidental should be accompanied by a plan for the management of wildlife population and habitat.

In everyone of the United States wildlife is considered the property of the state. Objectives in terms of numbers and species are generally set by the state. Most landowners and public agencies find themselves in the role of managing wildlife habitat rather than populations. Consequently, coordination and understanding between those who manage wildlife habitat and those who control wildlife populations is necessary to satisfy society's need for timber and the needs of wildlife.

The forest industry recommends that any land management plan which provides for wildlife be specific and include the following:

- (1) Provision for specific action to meet wildlife management objectives, needs, and problems determined by the landowner or responsible manager.
- (2) Acknowledgement of the presence of threatened or endangered species whose populations may be affected by forest management activities. If compatible with overall objectives, the plan should consider specific actions to maintain or create favorable habitat. Wildlife population authorities may recommend complete withdrawal of certain areas from all human use to protect a species. Such action should be taken only after developing full knowledge of its impact on the full social benefits from the land.
- (3) Provisions for preventing unnecessary habitat alteration deleterious to previously determined wildlife population or species objectives when such is not in conflict with other management objectives.
- (4) Provision for positive action to create or improve habitat in order to maintain or increase diverse wildlife populations as compatible with other land management objectives.

RESEARCH

Any land management plan can be effective only if based on accurate knowledge. An understanding of the processes and effects of vegetative disturbance is needed for successful wildlife management activities.

Understanding is also needed of wildlife population dynamics and of detailed characteristics of wildlife species. Many times actions are taken or stopped on incomplete knowledge. On other occasions the knowledge is available but not useful for decision makers. In some cases when circumstances have caused declines in important wildlife populations it has denied human use of essential resources when wildlife would not actually be harmed.

To help overcome these deterrents to the valid application of wildlife management principles, the forest industry encourages increased public and academic wildlife research which objectively seeks to improve understanding of wildlife species and populations. This will help make decisions on basis of better knowledge. To this end, all research organizations should distribute their findings in a form readily understood by forest managers. Forest managers should use research findings to meet wildlife management problems.

Senator WALLOP. The next witness is Mr. Chris Farrand, the Chamber of Commerce.

STATEMENT OF CHRIS FARRAND, U.S. CHAMBER OF COMMERCE

Mr. FARRAND. Good morning, Mr. Chairman. With your permission, I will dispense with reading the testimony and discuss the major points.

My Name is Chris Farrand. I am manager of the Resources and Environmental Quality Division of the Chamber of Commerce of the United States.

We appreciate the opportunity to be here and support the protection of our vanishing species. We think the endeavor is worthy of the attention the Congress and particularly this committee has paid to it.

We have two basic suggestions to offer today. First, in concurrence with the statement of Mr. Thompson, we believe that there needs to be more careful definitions of some of the terms in the act.

Some of the key terms in the act were not really defined at all in the original statute. Some of these terms are species, range, significant, portion of range, habitat, critical habitat, endangered, and recovery. Variations of these terms alone will cause great uncertainty and will hinder, we believe, the effectiveness of the act and certainly cause misunderstanding on the part of other Federal program managers and the private sector.

Given the nature of the task, it is no wonder that the agency has taken a somewhat measured approach to the statute. And considering the powers inherent in the act, particularly section 7, we believe there has been remarkably few conflicts.

That is not, however, to say there will not be conflicts in the future.

The second proposal we have to make today is there be provided in the statute a mechanism for conflict resolution. This does not mean that we propose that nonbiologists or Federal program managers or the Congress itself determine what an endangered species is or whether a species is in fact endangered or, third, whether an area of land is in fact a critical habitat for a species. Those are questions for biologists to answer.

What we do feel is that the responsible Secretary, either the Secretary of the Interior or the Secretary of Commerce, should have the flexibility, through a careful rulemaking process, a mechanism, that would allow him to make exceptions to the absolute provisions of section 7.

Unfortunately, you cannot quantify the benefits of a particular species. There is no numerical standard you can apply to a furbish lousewort or a snail darter. What you have to do is make a qualitative judgment. Frankly, I believe you have to given the benefit of the doubt to the species. But there has to be that relief mechanism, we believe.

Where there is a conflict, and when there is no reasonable alternative to the proposed action to be undertaken by another Federal agency or supported by another Federal agency, and when the benefits of that action so significantly outweigh the benefits of the maintenance of that species or the maintenance of a particular habitat for an endangered species, then we believe the Secretary should be able by rule-making to make an exception.

The problem as we see it is not so much of devising a standard but of semantics, putting appropriate qualitative considerations into a mechanism in the statute so the Secretary will have relief.

Because of the inflexibility of the statute, we believe there will be both misapplication of the law—i.e., use of the law for purposes it was not designed for—and two, there will be an extreme reluctance on the part of other program managers to identify the problem when in fact they see it.

I don't want to cast aspersions on any agency, but I think in the few conflicts we have seen to date, there were instances where earlier identification of the conflict may have led to an earlier resolution. In particular, there is a case that went to the Supreme Court, which I don't believe was necessary. Such a relief mechanism, an exception clause, would have or could have prevented such a problem.

Senator WALLOP. Thank you very much.

Have you or the chamber worked on any language that you might suggest to the committee?

Mr. FARRAND. Senator, I would be happy to provide the committee with a rough draft of the language. What I would propose, and I have discussed this recommendation with conservationists, is that we sit down with the committee staff, both representatives of the appropriate environmental organizations and the business community, and see if we couldn't devise some language that would provide adequate protection and still provide an administrative conflict resolution mechanism.

Senator WALLOP. I think that would be good. I think you make a good point about something that is so strict that it causes people to ignore what they know to be true.

Mr. FARRAND. Senator, the language in section 7 is absolute. It subordinates every other Federal program where a conflict exists.

No other program has preemption over section 7 where you have a circumstance of an endangered species and a declared critical habitat. I am not certain the Congress understood that when the original statute was passed.

I am not even saying that that provision should be softened to the extent that the program decisions can be ignored. What we are suggesting is that we let the biologists make their determination, let the program managers make their case, and then let the appropriate Secretary, the one whose primary responsibility is protection of species, make an exception where an exception is warranted.

Thank you very much.

Senator WALLOP. Thank you very much, Mr. Farrand, and Mr. Thompson. We appreciated your testimony.

[Mr. Farrand's statement follows:]

Chamber of Commerce of the United States of America

Washington

STATEMENT
on
THE ENDANGERED SPECIES ACT OF 1973
before the
THE RESOURCE PROTECTION SUBCOMMITTEE
of the
THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
for the
CHAMBER OF COMMERCE OF THE UNITED STATES
by
Chris Farrand*
July 22, 1977

My name is Chris Farrand. I am manager of the Resources and Environmental Quality Division of the Chamber of Commerce of the United States.

The National Chamber appreciates the opportunity to appear today to discuss the Endangered Species Act of 1973. We recognize the need to insure the survival of both threatened and endangered species. Protection of our vanishing flora and fauna is an important endeavor, worthy of the attention it has been given by the Congress and by this Committee.

The Congress now has the opportunity to make the Endangered Species Act more workable. Toward this end, the Chamber has two basic suggestions to offer. First, we believe there should be more careful definition of the terms of the Act and, secondly, we are proposing a mechanism to resolve inevitable conflicts between this statute and other federal program objectives.

When the Endangered Species Act was passed, the public's understanding of the problem was considerably more limited than it is today. In 1973, there were 109 American species listed. Congress rightly felt there was a need to enhance protection of such species as the bald eagle -- our national symbol -- the whooping crane, the black footed ferret, and the grizzly bear.

The Act further provided that private citizens could petition for the listing of other less-familiar species and, by 1975, there were 24,000 plants and animals suggested for the

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threatened or endangered categories. The task of listing these species is enormous. It could take the seven scientists of the Office of Endangered Species hundreds of years to complete the effort. If you consider the nearly 100,000 insects in North America, many tiny creatures with half-acre distributions might also be eligible for listing. Noah, himself, would have found the task an impossibility.

Some would argue that the Fish and Wildlife Service has been far too cautious in its implementation of the Act. However, given the dimensions of the assignment as we know it today, the Agency's measured approach is understandable. We do not criticize what has occurred to date. In fact, considering the powers inherent in the Act, there have been remarkably few conflicts between its purposes and those of other federal and non-federal programs. We are here today to suggest ways to avoid problems in the immediate future.

Definition of Terms

It is apparent that several key terms in the Act need better definition. In particular, Congress should give further guidance as to the meaning of the terms "species," "range," "significant," "portion of range," "habitat," "critical habitat," "endangered," and "recovery." Variations in the interpretation of these key terms will hinder the effectiveness of the Act, and cause uncertainty and misunderstanding on the part of business and federal program managers faced with potential endangered species problems. To avoid unnecessary litigation and delay, clarification of these terms must be provided.

The determination of "critical habitat" is defined in the Endangered Species Technical Bulletin of August, 1976, as that area of land, water, and airspace required for the normal needs and survival of a specie. "Needs", however, is defined as that space needed for "growth, movements, and behavior; food and water; sites for breeding and rearing of offspring; cover or shelter; and other biological and physical requirements."

By prohibiting any federal agency from making any modification which would be detrimental to a given specie in any area designated as critical habitat, Section 7 becomes the Act's sharpest cutting edge. It makes the Act so inflexible that misuse is not only possible, but very probable. We recognize that critical habitat need not be a single use of land. There may be many kinds of actions which can be carried out within the critical habitat of a species that would not be expected to result in a reduction in the numbers or distribution, or otherwise adversely affect such species. However, there is no definition of what constitutes a permissible action in an area designated as critical habitat. Without such definition, the result will be continued confusion and unequal application of the concept.

A Balancing Mechanism

One of the concepts underlying the Endangered Species Act was the fact that man has little understanding of the interlocking roles played by different species in our ecosystem. How important is a given species to man's well-being, or to that of other species? The value of a species is difficult to measure. If the value is purely esthetic, it is almost impossible to quantify. But, if part of the value lies in its support of other forms of life, then a different measurement might result. However, no method was provided in the Act for measuring the importance of the snail darter, or the furbish lousewort. We are not suggesting that a numerical standard be provided, only that a mechanism for conflict resolution be devised.

Section 7 requires that, once a critical habitat has been declared for a listed species, all federal or federally assisted action which might jeopardize the continued existence of the species is prohibited. Thus, Section 7, which has not yet been fully implemented, compels all federal agencies to subordinate all other policy or statutes to the Endangered Species Act.

While relatively few conflicts have arisen thus far, it is apparent that, as more species are listed and more critical habitats are designated, confrontations between federal agencies and federally assisted programs will increase. There are now 172 species listed as endangered or threatened. There are an additional 60 or 70 for which rules have been proposed. There are some 1700 plant species which are under notice of review by the Fish and Wildlife Service. If particular habitats were to be designated as critical for each of these species, conflicts with other program objectives are sure to arise.

How are such conflicts resolved. There is, at present, an informal negotiating process in which critical habitats are more carefully delineated, and through which certain actions can be deemed consistent with the maintenance of a habitat or a species within a habitat. However, such informal arrangements are uncertain and, perhaps, unfair for other program managers.

Therefore, there should be a formal mechanism by which the Secretary of Interior can determine that a proposed action by his department, or assisted by his department or by any other department or agency, significantly outweighs the benefit of maintaining the critical habitat. Since it is difficult, if not impossible, to quantify the benefits and values of a given species or a given habitat, any balancing mechanism should be weighted toward the maintenance of the species.

We are not proposing that a Secretarial determination be made as to whether a species is, in fact, endangered. That decision must be left to the biologists.

We are proposing that the Secretary, mindful of his role as protector of our vanishing plant and animal life, be empowered to make judgements as to whether a proposed action has sufficient social and economic benefits to outweigh significantly the need to preserve a given species in a given location where a conflict exists.

No such flexibility exists in the law today. No matter how great the proposed action, or how insignificant a species may be, the law, as currently worded, allows no exception where the proposal jeopardizes the existence of that species.

A properly considered and properly worded mechanism is needed to allow the Secretary of Interior, or the Secretary of Commerce, to make appropriate exceptions to the requirements of Section 7 to permit federal actions or federally assisted action to occur where:

1. No reasonable alternatives to the proposed action exist.
2. The benefits of the proposed action are significantly greater than the benefits of maintaining the critical habitat.

Without such a mechanism, we foresee growing conflicts between the laudable goal of maintaining a variety of our wildlife and the need to maintain a healthy economic basis. We wish to diminish such conflict by providing a reasonable and rational means of administrative resolution.

Let me reiterate that the National Chamber has no quarrel with the purposes of the Endangered Species Act, or the manner in which it has been administered to date. We wish only to avoid the problems we foresee in the future. We stand ready to work with the environmental community, and this Committee, to help devise an appropriate method to resolve those problems equitably.

Thank you.

Senator WALLOP. Next will be the State agency panel: Mr. John S. Gottschalk, executive vice president, International Association of Fish and Wildlife Agencies; Mr. James Keeler, chief, Wildlife Management Division, Alabama Department of Natural Resources; Mr. Steve Gallizioli, chief, Research Division, Arizona Game and Fish Department; Mr. Robert L. Evans, assistant director, Division of Wildlife, Colorado; Mr. Tommy Hines, wildlife biologist, Florida Game and Fresh Water Fish Commission; Mr. Lloyd Oldenburg, game research supervisor, Idaho Fish and Game Department; Dr. Sylvia Taylor, assistant coordinator for endangered species, Wildlife Division, Michigan Department of Natural Resources; and Mr. Lloyd Bell, administrative assistant, Commission on Public Lands, Washington State.

Would you please begin?

STATEMENTS OF JOHN S. GOTTSCHALK, EXECUTIVE VICE PRESIDENT, INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES, WASHINGTON, D.C.; STEVE GALLIZIOLLI, CHIEF, RESEARCH DIVISION, ARIZONA GAME AND FISH DEPARTMENT; ROBERT L. EVANS, ASSISTANT DIRECTOR, DIVISION OF WILDLIFE, COLORADO; TOMMY HINES, WILDLIFE BIOLOGIST, FLORIDA GAME AND FRESH WATER FISH COMMISSION; LLOYD OLDENBURG, GAME RESEARCH SUPERVISOR, IDAHO FISH AND GAME DEPARTMENT; SYLVIA TAYLOR, ASSISTANT COORDINATOR FOR ENDANGERED SPECIES, WILDLIFE DIVISION, MICHIGAN DEPARTMENT OF NATURAL RESOURCES; AND, LLOYD BELL, ADMINISTRATIVE ASSISTANT, COMMISSION ON PUBLIC LANDS, WASHINGTON STATE

Mr. GOTTSCHALK. Thank you very much. It is a pleasure for me to lead off this panel of State witnesses this morning.

Before I begin to give the statement representing all of the 50 States, I would like to enter into the record the statement of James Keeler from the State of Alabama who, because of the changes in the schedule, was not able to be present here this morning. However, he did leave with us a prepared statement that he would like to have inserted in the record.

Senator WALLOP. It will be inserted at the appropriate point. [See p. 410.]

Mr. GOTTSCHALK. I have a rather lengthy prepared statement, Mr. Chairman. Recognizing the interest of the committee in having the opportunity to discuss this program directly with the people from the States, I am going to reduce this to an outline of the essential points.

The first point that we think is important to remember is that the Endangered Species Act was not really designed to save forever all of the living things on Earth. There is such a thing as the process of evolution, and it is inevitable that as changes take place on Earth, some species will disappear.

We do think, however, that it is important to emphasize that the real objective of the Endangered Species Act was to make sure that

none of the acts of man or none of the unconscious activities of mankind would bring about the demise of a species which otherwise left to its natural inclinations might continue to exist.

In other words, we think that there has been over the years a great deal of thoughtless exploitation of wildlife that this act can control. That is what we believe to be the cardinal principle behind the act.

As far as the performance of the program under the act is concerned, the principal problem that the States have to deal with—actually, there are about three—but the first one I will mention has to do with the listing process itself.

I think you are probably aware from your knowledge of conditions in your home State and other Western States that there was a great deal of controversy over the question of listing the grizzly bear as threatened and endangered, ultimately. That same controversy has surrounded the determination of the status of several other species. We go into this in some detail in our written statement, which I won't burden you with here.

But the point I think that most States feel is they and their expertise have not been taken into enough consideration in making determinations as to the precise status of endangerment of the various species that have gone on the list.

One of the things that has bothered the States in this connection is that the Department of the Interior has used the requirement that the State must have an adequate regulatory mechanism as a prerequisite to determining that the State was not in a position to properly take care of an endangered species.

The basis for this, at least in a number of cases, and particularly in the case of the grizzly bear again, was that there were gaps in the data. This, therefore, automatically meant that the State program was not adequate in terms of regulatory capability.

Well, when you look at the number of species there are, it seems to us it is obvious that a case can be made that there is inadequate data on most of the forms of wildlife that we are dealing with.

The wildlife management system and, indeed, the system of protection for natural areas in general is based on, among other things, experience. If experience shows that a particular species is not declining under an existing management regimen, then it can be assumed, we think, that whatever the program is, is satisfactory, even though we don't know the absolute "A" to "Z" details of the life history and the total biology of that species, let alone its place in the ecosystem.

We would like to suggest, as we have before, that it is high time the Department undertake a series of scientific symposiums among the recognized taxonomists of the country, but also including ecologists and practical managers, to attempt to define the criteria that could be usefully employed in helping determine the status of endangerment of the various major taxonomic groups.

Our third major point deals with the question of State cooperation. As you will hear and as you will see when you read the prepared statements of the other representatives of the States, there is a general feeling that Interior has dragged its feet in attempting to work out cooperative agreements with the States so that they, too, can participate in this program as full-fledged partners.

The States like to call the attention of anyone who will listen to the fact that in the hearings when the act was being considered, the Congress made it abundantly clear that this was to be a cooperative program and that its high objectives could never be attained without the close cooperation of the States. Yet, in practice, the bureaucratic delays that have been involved in qualifying States for cooperative agreements verge on, well, extreme bureaucracy at work. I will leave it go at that.

The second example that we think indicates that there has been something less than complete devotion to the idea of State cooperation is the problem of funding. The administration up until this past year refused to approve any requests for funds. It was only because the Congress took the bit in its teeth and added money to the administration budget that any funds have been provided the States for cooperative work.

There is now \$3 million which has been appropriated over a 2-year period for this program. There will be additional funds available next year from an appropriation request which was initiated within the Carter administration, we are glad to say.

Finally, and this is a real difficult problem for many of the States, the law requires that for any State to qualify for a cooperative agreement, it must have legislation which not only protects those species which are presently listed but also any species which any Secretary at any time in the future may declare to be endangered.

This opens up such a wide panorama of possibilities for what might be declared to be endangered that several States have simply shrugged their shoulders and said, "If that is what we have to do, we are not going to do it."

At the same time, the States do have regulations and laws which protect their own endangered species listed by themselves, and in general these are focused on what we would consider to be the more obvious and commonly known animals.

Our recommendation is, and we made this recommendation before, that the act be amended to provide that a State qualify to participate to the extent to which its laws do provide protection for endangered species that exist within that State. That eliminates the need for them to make a promise to do something far off in the future which many State legislatures simply refuse to do. In a word, it is a case of having half a loaf instead of a whole loaf if the whole loaf is impossible to obtain.

Our last point, Mr. Chairman, that we would like to emphasize has to do with section 7, about which there has been a great deal of public concern and some confusion.

In our view, section 7 gets to the real heart of the whole endangered species problem in this country and elsewhere. That is that most endangerment is a product of the destruction of the essential habitat for wildlife.

Section 7 would restrain actions of the Federal Government which would tend to destroy or interfere with that habitat.

We think it is extremely important that the essential provisions of section 7 be retained. We hope that the committee will come to that conclusion also.

Mr. Chairman, thank you very much. I appreciate the opportunity to be here. I am sure you will be interested in hearing the views of the rest of the people.

Senator WALLOP. Thank you, Mr. Gottschalk.

I won't have any questions until the panel is over, but I do take it that you don't consider the "Bureau Americano" is an endangered species.

Mr. GOTTSCHALK. No. I think that time will show that his viability is as great as ever and possibly becoming greater.

Senator WALLOP. Dr. Taylor?

STATEMENT OF DR. SYLVIA TAYLOR

Ms. TAYLOR. I am Dr. Sylvia Taylor, assistant coordinator of Michigan's endangered species programs. I wish to express our State's appreciation to the Congress of the United States and to all the Federal agencies for the fine cooperation that Michigan has received.

The Endangered Species Act of 1973 has been very well received in Michigan. In addition, Michigan has Public Act 203 of 1974 which strengthened the Endangered Species Act.

I have for an exhibit a program booklet which I have submitted. In it we have the objectives of our program, a copy of the State act, all the names and address of all the volunteers who served on technical committees and advisory committees, and last but not least, all the species and a little bit about them. We have birds, animals, plants—the complete scope of species.

[Dr. Taylor's statement and the booklet referred to appears at the end of today's proceedings, pp. 417-463.]

I would say that the Michigan program is a citizen's program. It was initiated and maintained by the citizens. In the department of natural resources, we have a small coordinating office plus the help of a department field organization.

I brought as another exhibit as an example of how this volunteer effort works. This is a reprint of two articles from the May issue of *The Michigan Botanist*. It was written by a group of scientists on the technical committee for plants. One of the articles is a commentary of the endangered plants in Michigan by the chairman of the committee, John Beaman of Michigan State University.

They put thousands of hours of time into this effort; into evaluating which plants should be listed in Michigan and which should not.

The Natural Areas Council of Michigan paid the charges on one of the articles. The Michigan Botanical Club paid the charges on the other article.

I wore a patch today, a \$2 patch. Citizens all over the State buy these patches. The money goes into Michigan's Living Resources Fund. With money from that fund, 4,000 reprints have been bought and are being distributed Statewide so people may review the comments on plants.

This is the sort of citizens' effort we have. There are many others in other groups. Our normal office operation has four main components. We coordinate research and survey efforts to learn more about species, both in universities and by private individuals and groups, like the

Audubon Society. We conduct environmental review of proposed projects to see whether they may or may not have impacts upon endangered or threatened species.

We have management programs for the preservation of species. Our most notable one at the moment is the management of Kirtland's warbler.

We have a public involvement function as well; many letters of schoolchildren, many public speaking engagements. The program is not very old, but already we are very happy to report that some success is showing. This year there were more Kirtland's warblers in Michigan than ever before. The warbler is a beautiful endangered bird that nests only in Michigan.

I brought a *Detroit Free Press* article dated July 7, 1977. I will read the first paragraph.

In 1974, there were 167 pairs. The following year, 179 pairs. The next, 200. This year there are at least 218 pairs. The Kirtland's warbler is coming back slowly, painfully, for both the bird and its human guardians. But it is coming back.

The article goes on to compliment the national recovery team for their fine coordinating efforts.

It is quite an interagency scramble to try to protect this one species. Twenty-five percent of the birds are on the military reservation on the firing range. There are birds on Federal forest land, and on State forest lands.

Our recovery team is able to coordinate all of these efforts for the benefit of the warbler.

Because of the Endangered Species Act of 1973, the military recognized their duty was to protect the warbler. They are cooperating and doing very well.

This brings us to another point. I would say one of the most satisfying aspects of our program is our ability to resolve conflicts with competing land users. We feel that as long as there is lead time, there is no doubt but that conflicts between the endangered species and competing land uses, will be resolved to mutual benefit. The Kirtland's warbler in the military area is one example.

The Michigan Department of State Highway and Transportation has developed alternate routes for the reconstruction of U.S. 2 to avoid threatened species. The U.S. Army Corps of Engineers carefully avoids beds of American lotus in Monroe Harbor. That is a plant species that is on the State list but not on the Federal list. The corps, therefore, is respecting our State list. We have many more State-listed than Federal-listed species.

We have involved a developer in Oakland County with about 20 acres of the most expensive residential real estate in the State of Michigan who expects to sell 1-acre lots for about \$64,000. Someone found a mature American chestnut tree in the woods that he was developing. That species is on our endangered plant list. By coordinating with him early, he saw the value of the tree. He is putting deed restrictions on the lot and will probably get a higher price for the lot.

So we find that if there is enough lead time in planning, that the Endangered Species Act is not interfering with competing land uses. However, if we ever became involved just when someone was going

to do something, we feel that would be a different story. But we haven't yet had that problem.

I have come to ask for some things for long-term needs. I think that since Michigan has not had some of the initial hurdles that some of the other States had—and you will probably be hearing what the initial hurdles are in the requests from other States—our attention is more on the future.

The greatest deficiency in our program is the lack of knowledge of the species. We need to know more about the abundance and location and limiting factors of the species we are trying to protect.

Michigan has no State Museum of Natural History. We lost our biological survey in 1921. There has been a concentration of effort in the universities in recent years for cellular and molecular biology. That is fine. We feel there needs to be a similar effort in research in field biology. It is high time more interest is shown in this area.

We need a long-term program so that we can have a continuance of our activity. So because of this, I have four requests.

First of all, we are asking for continued support of our approved projects under our cooperative agreement.

Second, I am asking for funding for plants. We think that it is really unthinkable that the Federal Government would encourage protection of animal species but not plant species. We have lists of plant species. We have the ability to work on them. But for some reason we have funding for animal studies but not for plant studies.

We would also greatly appreciate 75-percent Federal funding, instead of 66%. As long as there are other programs with 75 percent Federal funding, it makes it more difficult to get match money from the State legislature. It doesn't look as good a deal.

The last thing I am asking for is encouragement for more States to join in Federal-State cooperative agreements. The species do not know political boundaries. Many of the species in our State occur in adjacent States. We now have the ability to work with the State of Wisconsin through a cooperative agreement, but we do not have the ability to work with the States of Ohio and Indiana. We wish we had that ability.

In conclusion, I would simply like to say that we think one of the reasons we have had a successful beginning in Michigan is because of the Endangered Species Act of 1973. Another reason is because people are putting the species first and bureaucratic hangups second. We are determined in Michigan never again to lose any species due to the foolishness and ignorance of mankind.

Thank you very much for your time.

Senator WALLOP. Thank you, Dr. Taylor.

STATEMENT OF LLOYD OLDENBURG

Mr. OLDENBURG. I am Lloyd Oldenburg, research supervisor for the Fish and Game Department in Idaho. I will summarize this statement. I have presented a copy of this.

In addition to that, I have also submitted a copy of the current progress report of 1976 of the grizzly bear interagency study team report, which is our major involvement with endangered species.

I am a member of that study team. To date, we have, as I indicated, only limited experience. We have three native species: the peregrine falcon, the northern Rocky Mountain wolf, and grizzly bear. Also, the whooping crane in the State of Idaho. At the present time these are classified.

The peregrine falcon is found in small numbers throughout the State. There are no concentrations. It has been protected for many years.

Currently working with the recovery team, there have been three captively raised chicks transplanted in the State of Idaho this past spring. They are put into prairie falcon nests with foster parents. They all three fledged. They are now flying. It appears to be quite successful.

In 1962 we had one report of a northern Rocky Mountain wolf being brought to a taxidermist. Outside of that report we don't have any that appear to be authentic since 1930. We have very grave doubts whether northern Rocky Mountain wolves do actually exist in the State of Idaho.

The grizzly bear is found in the area adjacent to Yellowstone Park in southeast Idaho. It is also found in the Panhandle region of northern Idaho and two areas of the Panhandle National Forest.

We have protected the grizzly bear in the State of Idaho by State Fish and Game Commission action since July 1946. We do not believe that the status or the population has changed very much in 30 years. We have reasonably good records.

The introduction of whooping cranes into Idaho is now in its third year. It is being done by the Idaho Cooperative Wildlife Research Unit. It is funded by the U.S. Fish and Wildlife Service.

The idea of that program is to take eggs from the wild whooping crane populations in the Yukon, and from Patuxent Wildlife Research Center here in Maryland, and transport them into Idaho. It is a foster parent program. They are putting them with sandhill cranes and they are hatching. It appears now that this has a possibility of becoming successful.

We have not entered into a cooperative agreement with the Federal Government for any endangered species program to date. There has been a reason up until July 1. The Rocky Mountain wolf is classified as a predator in the State of Idaho. They are up for grabs. Let me back up for just a minute.

Our State legislature did remove the wolf from the predator list. Our Fish and Game Commission met yesterday to consider placing them on a State threatened species list. Whether or not that was done I haven't heard.

The provision still would remain even if they are on that list. They could be taken for the protection of livestock or to preserve private property.

We anticipate applying for a cooperative agreement later this year, but because of these types of hangups, we probably won't have the smiling success that Sylvia—Dr. Taylor—has portrayed has happened in Michigan, because of the way the act is written.

In overview of the entire species concept of the Endangered Species Act, it appears to us that a species has to be in trouble before it can get

any consideration. We very much appreciate consideration being given to finding out about species and obtaining enough information ahead of time to prevent them from getting into this type of a situation.

I would like to point out the very successful study of the mountain lion which was undertaken in Idaho about 10 years ago by Dr. Hornocher. We feel because of that extensive single species research which was previously done we now have one of the best lion management programs and probably the most healthy lion population in the United States today.

We think that if right now this type of effort could be directed at the mountain caribou, which we boast the only population in the lower 48 States, the river otter, the wolverine, and a few other species, that perhaps we could avert more or less a tragedy in these species at a later date; because when you do this basic research and get these answers, you provide information on all the things that are going to be necessary if classification and subsequent delineation of critical habitat has to be undertaken.

We also submit that we think it would be much more economically feasible to do these types of studies than to later on go through the administrative gymnastics of classifying the species and then delineating the habitat.

One of the things that has bothered us about the act is the selection of species for consideration. We contend that the States in which species reside should have equal authority with the U.S. Fish and Wildlife Service in making recommendations to the Secretary of Interior on whether classification is necessary.

To date, on the involvement with the grizzly bear, we believe that we have been completely ignored, and the State Fish and Game Agency perhaps has about the same weight as one vote of one individual who has never seen a grizzly bear or grizzly bear habitat.

The logical place to get information is the place where the animal lives. It is the logical place; and for people to do it who are the people that work with them.

The Endangered Species Act, section 4, does state that the Secretary shall make determinations required by the subsection on the basis of the best scientific and commercial data available to him.

We would urge that all decisions be based on data, not on emotion.

Section 7 has come up here this morning repeatedly, and we have one example of many that we could bring up. We picked out the impact statement that was written on the operation of the national wildlife refuge system as an example of an endangered species being given a higher priority than that for which the national wildlife refuges were originally acquired.

We don't think this is right. We questioned it when it was being done. To my knowledge, we never got an answer.

Another item which we have had trouble with is the haste that seems to take place once the wheels are in motion. Again, I have to go back to the grizzly bear, both the classification of the animal as threatened and the subsequent process of delineating critical habitat, which is still going on to my knowledge. It hasn't been completed.

Some of the questions in this critical habitat delineation that have come up are, what priorities will be established regarding the use of

the area after the delineation is made? We have never gotten an answer. We don't have it. We don't know if the agency responsible has it.

I think that the law has to spell out what the intent is on this. How is it going to affect hiking, camping, hunting, or any other activity that may take place within an area after it is delineated?

We have been very reluctant to take a very hard stand because of these unknown facts.

As a resource agency, it is our responsibility to insure the perpetuation and well-being of all wildlife. Species are becoming endangered or threatened through the activities of man. I think it is man's duty to do everything possible to rectify this situation.

We feel that the Endangered Species Act may be one of the most important conservation measures ever enacted. On the other hand, if it is not administered in a realistic manner, we feel that it could turn out to be a real green-eyed monster that nobody is really going to want.

I thank you very much for the opportunity to present this.

Senator WALLOP. Thank you, Mr. Oldenburg.

STATEMENT OF ROBERT L. EVANS

Mr. EVANS. Mr. Chairman, I am Robert L. Evans, assistant director, Colorado Division of Wildlife. I certainly want to thank you and the committee for scheduling this hearing and giving Colorado, as well as the other States, an opportunity to comment on the Endangered Species Act.

We are in full agreement with the intent of the act. We feel it is a very significant piece of legislation. We have given it strong support in the development of our own State program on endangered and threatened species.

We are 1 of the 18 participating States to receive funding, which we appreciate. We are putting it to good use, which I will cover briefly here.

But we are concerned in the way the act was written, especially section 6(c), that at some future date a species might be classified as endangered, over which we would not have adequate Division of Wildlife authority, and we could lose the funding program. We are concerned about that.

We certainly want to recommend that this committee consider, and approve the proposed amendment to be submitted by the International Association of Game and Fish Agencies.

We have another matter concerning us, which is the funding of the grant-in-aid program. Mr. Gottschalk spoke on this briefly. While the Federal agencies were funded earlier, it was not until April of 1977 that moneys became available to the States.

We would recommend that the committee remind Congress of its responsibility as stated in the act to provide funding.

We can report that the Fish and Wildlife Service has been very aggressive in carrying out the act. Director Greenwalt and his staff are to be commended. In most cases there has been good cooperation with us, but not in all cases.

For example, we applied for our cooperative agreement in November of 1974. We received the approval of the agreement on

June 23, 1976. But in all fairness, I should report that it didn't take over a week to get the process of funding into gear.

Then we had another example of a critical habitat proposal for some whooping cranes. This came as a result of a first-year experiment down in the Monte Vista Refuge when some whooping cranes came into the area which was then declared in the Federal Register as a critical habitat. We were not consulted at the time or beforehand.

We did a little checking around and it was difficult to run down where the recommendations came from.

All we would like to point out here is that we do feel that there is room for improved communications between the Fish and Wildlife Service and the States.

We would also like to recommend that some basic criteria be established for listing species and designation of critical habitats. In fact, we have three specific recommendations. We request that the States be consulted in regard to: (1) Listing and delisting of species, (2) establishing priorities for funding of the Federal programs, and (3) proposing designation of critical habitats.

We feel that with some proper criteria, prior notice, and by working a little more closely together, we can certainly support most of the programs.

I would like to briefly review some of our experiences with the Endangered Species Act. I can say that it is because of the act and because of the funding which we have received as a result of the act that we have been able to carry out what we feel is a progressive endangered and threatened species program in Colorado.

We have been trying for several years to get general funding for our nongame program, including endangered species. You realize how difficult that is sometimes. We are competing with State funds for other purposes, such as schools, welfare, and institutions. But now that we do have the funding, we are able to make some significant progress in this field.

This year Colorado received \$100,000 in Federal funds as part of the program. This was matched by \$50,000 from our general funds. In addition, we received some \$117,000 in general funds for the nongame program.

We now have what we feel is a very up and coming nongame section, consisting of six people with a fairly modest operating budget.

Since the early 1970's, we have been trying to scratch around and come up with funding for nongame and endangered and threatened species. We tried just about everything in the book. One of the first things we did was try to get the people who enjoy wildlife to pay for part of the program without using the hunters' and fishermen's fund all the time. We came up with a \$5 conservation stamp.

The first year we sold about 800 of them, then up to 1,000 at \$5 each. Now it has tapered off and is down to around 400, so we are losing some ground. The legislature passed a bill reducing the cost of the stamp to \$1. Of course, we are going to have to sell quite a few more to make up the difference. But at this point in the game, we are going to try anything.

Another thing that was a little discouraging on the \$5 conservation stamp was the fact that more than half of them were purchased by

the hunters and fishermen. We still have to get more interest among all the people to get them to contribute to the program.

Then we went to the general assembly with proposed legislation on the personalized auto license tag at \$35 to be used for the nongame program. The bill passed, but the Division of Wildlife did not receive the money.

This is an example of what we can get into. The Attorney General declared it was unconstitutional to divert license plate revenues from the highway user fund. As I said, they still thought it was a good idea and passed it and left us out.

Then we have had some other projects. The Southland Corporation's 7-11 stores came up with a program to sell some bicycle decals depicting a river otter as an endangered species and one we wanted to introduce into Colorado. These decals were sold for 25 cents each. That brought in over \$4,000 in several months. So it shows if we can get to the youngsters at 25 cents, then hopefully we can get to the adults with the \$1 stamp.

The Colorado Wildlife Federation has been working with us for several years. They sold some wildlife decanters, patches, and T-shirts. I should have worn one of them. They have come up with around \$3,000, which they have contributed to the nongame program.

Then our most recent, and I think possibly most encouraging effort that the legislature just approved, is an income tax checkoff program—this pertains to refunds only—so that Coloradans can check a box if they want to contribute \$1, \$5, or \$10 to the nongame program. We are hopeful that this will come through with a substantial amount of money.

In regard to the \$150,000 in the cooperative program I will just hit the highlights of what that involves. A most encouraging program is related to the peregrine falcon. We have actually been able to go in and monitor the successful nesting areas and take some of the eggs out, hatch them, and then replace the chicks in the nest.

We have two programs. One is called "double clutching" where you remove the eggs, and the birds will lay another clutch of eggs as before and double their production. Then, of course, bringing the eggs into the laboratory in order to protect the thin eggshells and hatching them.

The other program is called "hacking," where we then take the fledglings out and lace them on a suitable ledge where they are fed by hand. Hopefully they will return to the site and breed.

Other threatened and endangered species programs are on the greenback cutthroat trout, the humpback chub, Colorado Squawfish, and blackfooted ferret, which are all in the inventory stage. And last would be the illustrated publication featuring the endangered and threatened species of Colorado.

We feel that all of these programs will be beneficial. We are hopeful that we can continue to participate in the program. We ask the committee's consideration of the proposed amendment to help us do so.

I do have a much longer statement here which has been submitted for the record. [See p. 470.] Certainly feel free to use it in any way you wish for your hearing process.

Thank you very much.
 Senator WALLOP. Thank you, Mr. Evans.
 Mr. Gallizioli.

STATEMENT OF STEVE GALLIZIOLI

Mr. GALLIZIOLI. I am Steve Gallizioli, chief of the Research Division of the Arizona Game and Fish Department. I appreciate the opportunity to come here and discuss our experience and some of our concerns with the Endangered Species Act of 1973.

In the interest of time, I will also try to boil down my presentation. But I would like to have the full statement entered into the record.

Senator WALLOP. It will be done, sir. [See p. 482.]

Mr. GALLIZIOLI. The Arizona Game and Fish Department can wholeheartedly support the purposes of the Endangered Species Act, the most important of these being to "provide a means whereby the ecosystems upon which the endangered species * * * depend may be conserved."

For wildlife, protection of the ecosystem, what we usually call wildlife habitat, is far and above everything else in importance. Without habitat preservation, anything else we may try to do for an endangered species is not likely to amount to much.

Arizona was active in a number of programs aimed at what later came to be called endangered species for many years before the passage of the 1973 act.

As background for some of my other remarks, I would like to very quickly review some of these programs. Long before passage of any Federal legislation, we were working on six species which are now considered endangered and are on the Federal list. These are the Yuma clapper rail, the Sonoran pronghorn, the masked bobwhite, the Mexican duck, Gila topminnow, and the Arizona trout.

Our efforts to restore the masked bobwhite to historic habitats in southern Arizona go back some 40 years. We have repeatedly tried to accomplish the restoration of this species which, incidentally, was eliminated not by hunting but by the extreme overgrazing which prevailed in the late 1800's throughout the southern part of Arizona.

We tried to restore this bird into its historic habitat using wild-trapped birds from Mexico, but our efforts were unsuccessful. I am afraid the overgrazing which was responsible for its decrease has never really ceased and the habitat conditions required were never really restored.

Another species we have worked with is the Yuma clapper rail. Beginning in 1967, when Arizona hired its first nongame biologist—the first State, incidentally, to hire a nongame biologist—the major part of his time was taken up with investigations of the Yuma clapper rail.

As a result of those activities, our knowledge of this species, its distribution, abundance, habitat, and limiting factors is much farther advanced than it was before he began work.

The Mexican duck is another endangered species that Arizona has been very much involved with for a long period of time. In addition to investigations of numbers, distribution and reproductive success, we spent quite a bit of money on habitat acquisition.

Just within the past year we committed some \$250,000 to this program to acquire additional habitat in which we hope to restore the conditions necessary for the propagation of this bird.

The Sonoran pronghorn is another endangered species that we worked on for many years, probably going back again for 25 or 30 years. Our studies have led to a much better understanding of numbers, distribution, habitat conditions and limiting factors of this species.

Among the endangered fish species found in Arizona we were for a long time involved with the Gila topminnow. This is not a species that has ever been of interest to any but a small number of fish specialists. It has certainly not been of interest to the fishermen of the State. Yet we devoted almost as much effort to the Gila topminnow as we did to the Arizona trout.

Both species were propagated in our hatcheries and then successfully introduced into a number of historic waters.

Actually, the passage of the 1973 act hindered our program for a period of time because of the restrictions that were imposed upon the State with regard to the taking and transportation of endangered species.

My purpose in reviewing what the Arizona Game and Fish Department has done for endangered species has been to establish our credentials in the area of endangered species concern.

In addition to these field projects, many of which are still going on, we now have department representatives on nine recovery teams. This may be something of a record for a State. I think it probably is, at least for the Western States.

On four of these teams our representative serves as a team leader.

After listening to this list of accomplishments—at least I consider them accomplishments—it may come as a surprise to learn that Arizona has made no effort to enter into a cooperative agreement with the Fish and Wildlife Service under section 6 of the 1973 act.

There are a number of reasons why we have been reluctant or unwilling to do so; but the most important is one that has already been touched on by other members of the panel. That is the provision that a State must have authority over all endangered species resident to the State that are currently on the Federal list.

At the present time, Arizona does have authority over all species on the list that are resident to Arizona. The Game and Fish Department has authority over all the vertebrate species, as well as the mollusks and crustaceans, but we do not have authority over other invertebrates.

We are reluctant, and we don't think it is prudent on our part, to gear up for any kind of a long-range program using grant-in-aid funds available under the act, only to be disqualified sometime in the near future because of the listing of species over which we do not have authority.

There are several butterflies, for example, that are resident to Arizona that are now under consideration. As soon as a butterfly or some other insect goes on the list we will be disqualified and our program would have to be terminated.

We understand that a bill is soon to be introduced which will take care of this problem. It is a bill that the Arizona Game and Fish Department, through the Western Association and through the International Association of Fish and Wildlife Agencies, has urged for the

last several years. We certainly hope that the Congress will look favorably on the passage of such an amendment. It would speed up many of the programs that a number of the States would undertake if they could then qualify to enter into a cooperative agreement.

In spite of our reservations about some of the provisions of the 1973 act, we are convinced that the act can be a very important vehicle to stop the rapid rate of extinction of many wildlife species.

To be truly effective, we feel that it is imperative that section 7, which prohibits the destruction or the modification of critical habitat by Federal agencies, be preserved. Perhaps the provisions of section 7 must be made a little bit more flexible than they appear to be. But considering the fact that most of the endangered species in the United States are on the list because of habitat limitations, it is pretty clear how important section 7 really is.

We feel that any drastic modification of section 7 will emasculate the Endangered Species Act of 1973.

One concern of the Arizona Game and Fish Department has to do with the appendices to the Convention on International Trade in Endangered Fauna and Flora. This is one of several international treaties implemented by the passage of the 1973 act.

The purpose of the convention was to address the problems of species that were endangered because of international trade. But, in reality, the convention, at least the people that were involved in the preparation of the appendices to the convention, didn't seem to make any distinction between species that were threatened with extinction because of international trade or threatened because of any other factor. At least that is the way it appears to us in Arizona on the basis of the Arizona species that are on the convention appendices.

There is absolutely no evidence that such species as the Sonoran pronghorn, the Mexican duck and masked bobwhite, which are all on appendix I—or the Mearns quail and Arizona mountain lion, which are on appendix II—have ever featured in international trade. In fact, the Mearns quail and Arizona mountain lion have been hunted regularly for many, years. There is no evidence they are threatened by hunting or trade or by anything else.

The placement of the Mearns quail on the list is particularly disturbing to us. This is one of our important upland game species. Over the last 9 years we have devoted some \$200,000 to a comprehensive ecological study of the Mearns quail.

We know what the limiting factors are. Overgrazing by livestock is the most important of these factors. We also know that hunting does not have any depressing influence on the Mearns quail population.

They are subject to the usual ups and downs of all wildlife species in Arizona, but there has been no downward trend in population. Yet, there it is on appendix II.

We understand it is also under consideration for the threatened category under the 1973 act. How it came to be on appendix II we have not been able to ascertain; nor have we been successful in trying to get it removed.

Our most recent recommendations to remove the Mearns quail and mountain lion and other Arizona species from appendix II at the next meeting of convention States in October 1977 were submitted in a letter

dated May 12, 1977, to the Fish and Wildlife Service. The letter was acknowledged, but the recommendations seem to have been ignored. At any rate they are not on the list of species which will be proposed for discussion at the next meeting of the special working session of the convention next October in Geneva, Switzerland. Apparently our delegation refuses to consider the merits of Arizona's recommendations for delisting despite the absence of any evidence that (1) the species is in any way threatened without extinction or (2) that it has ever entered into international trade.

In the interest of the cooperation which the 1973 act calls for, and which Federal administrators of the act have repeatedly stressed is vital to fulfill the purposes of the act, we would suggest that the opinion and recommendations of the several States in matters such as this not be so cavalierly dismissed.

Mr. Chairman, this concludes the testimony of the Arizona Game and Fish Department.

Senator WALLOP. Thank you.

STATEMENT OF TOMMY HINES

Mr. HINES. My name is Tommy Hines. I am a wildlife biologist from the State of Florida with the Florida Game and Fresh Water Commission. My major area of responsibility is wildlife management research.

The comments that I am going to make concern a single species and the experience we have had with it. I would like to say at the onset that we do support the Endangered Species Act. We have signed a cooperative agreement and do have an endangered species program.

However, based on our experience with the American alligator, we do believe that the administration of the law can be improved.

A prime example of this problem is our recent experience with attempts to delist the American alligator from endangered to threatened.

When it became apparent that alligator populations were increasing at a very rapid rate, we petitioned to have the alligator delisted to threatened. In June of 1976, we were advised that the delisting would be imminent. We were so advised on about a monthly basis for about 6 months, that it would soon be delisted.

It was not until January 1977, that the alligator was actually delisted to threatened. During 1976, we had received approximately 10,000 complaints from private citizens in Florida concerning alligators in their swimming pools and their canals and backyards.

We anticipate asking for further delisting of the alligator. This request will probably come as additional data are generated by our current research.

We would hope that if this request does come, that the Endangered Species Office will act as quickly as possible. We do not object to a critical review of our data by qualified people; nor even of our conclusions by qualified people. We do question, however, bureaucratic inaction and excessive response to some of the more emotional and poorly informed segments of the conservation community by the Endangered Species Office.

We are very much dedicated to the conservation and management of the American alligator along with the other wildlife species in Florida. We feel that we are a responsible wildlife management agency, and we look forward to an appeal working relationship with the Endangered Species Office. I would like to underline the word "equal."

We cannot offer any detailed recommendations today because we are attempting to be brief. However, I have three general recommendations that I believe would help improve the administration of the act at least in our case.

No. 1 is to streamline the procedures to delist and/or list species and put strong emphasis on examining supporting data and less emphasis on objections by individuals or groups who have no data to support their position.

No. 2, keep open lines of communication with the States who ultimately have the responsibility for conservation and management of resident-endangered species. I might add that in the case of the alligator, we also had the ultimate responsibility for many of the problems that they generated.

No. 3, place just as much emphasis on recovery and eventual delisting of endangered species as the initial listing of the endangered species.

I might make one other comment concerning the alligator.

In general I think the one other comment indicated that biologically the alligator never did qualify as an endangered species. They are unique because of the fact they probably biologically were never endangered. In retrospect that seems pretty obvious. Some people felt that way at the time.

I am a member of the alligator recovery team. One of the biggest problems we have had is to write a recovery plan for a species that is already recovered.

In fact, it was probably the amendment of the Lacey Act of 1969 which set the stage for the recovery of the alligator, because it limited the interstate shipment of illegal alligator hides or alligator products. So it was well on its way to recovery in 1973, and I think it is a prime example of emotion probably dictating the species to be listed rather than biological facts.

Thank you. We appreciate the opportunity to have our comments heard.

Senator WALLOR. Thank you, Mr. Hines.

STATEMENT OF LLOYD BELL

Mr. BELL. Mr. Chairman, I am Lloyd Bell. I am the administrative assistant to the Commission on Public Lands in the State of Washington.

Our agency is a land management agency interested in economic output on 5 million acres of State lands. We are also interested as land managers, of course, in the preservation of species.

In 1976, the Governor of the State of Washington gave us the duty of protecting plants within the State of Washington. I look around

here at the panel, and all of these people told a story of success. I think I am going to have to tell a story of lack of success.

Our problem was that we had no information or very little information in an organized manner that would allow us to set up a program for the complete control and preservation of plants. The answer to our problem was to turn to the Fish and Wildlife Service and this Act in order to attempt to gain some Federal funding to start out our program.

We made application in 1976 for a program costing \$364,000. This program for the identification of baseline studies, of inventory, of management guideline programs, the whole model program as we saw it, could be provided for this amount of money.

Upon our application to the Fish and Wildlife Service, we were discouraged—discouraged in the sense they felt that our application would not be considered. However, they encouraged us to put in the application so that they would have an opportunity to rule upon this application.

We did so. We have worked very closely with our friends in the Fish and Wildlife Service since then. We did receive a denial of our application.

We have received a denial for two reasons. First, under a Solicitor General's opinion, the Fish and Wildlife Service has said that the funding sections of the act, those that allow funding under section 6(c), are not closely enough tied to plants per se in order to allow the Solicitor General to sign off as legal the expenditure of money for our program to study and to set up a program for plants.

Our attorneys in our State argued with the Solicitor that the intention of Congress was that plants were to be included as endangered and threatened species under the same act and the same provisions as for animals.

However, the Solicitor General prevailed, and I think even we can see as we look very carefully at the act, despite our argument, that improvements are going to have to be made in the act in order to directly tie the funding of plants to the funding sections of the act.

The second thing that was wrong with our application was that it came along apparently at the wrong stage. What had happened was that in the consideration of the act by Congress, it was conceived at that time that cooperative agreements would occur after the agreement with the Secretary on the list of endangered and threatened species.

What we had to do in our State, because of lack of data, was to start out at a stage ahead of that. We had to start out at the beginning. We wanted funding to help us to establish the list of endangered or threatened species.

Mr. Chairman, we are suggesting in the State of Washington that certain amendments be made to the act which will firmly tie the funding of plants and plant programs into the act as we feel was intended by Congress; and further, we are requesting that the funding range be liberalized to allow our State and many others to enter into cooperative agreements which will allow us to do the research necessary to establish an endangered and threatened species list.

I have left with the secretary or the clerk of the committee a suggested list of amendments. Since I have been here in the last few days, I think I am going to have to make one or two changes in that list.

Thank you, sir.

Senator WALLOP. Thank you, Mr. Bell.

I want to express my thanks to the panel in general because it has been most interesting. Some things concern me about it. I would like to ask a few questions.

Mr. Oldenburg, you mentioned something which intrigued me, that the Fish and Wildlife application of the act had a potential or had an actual effect on the operation of wildlife refuges, contrary to the things for which they were originally established. Is that correct?

Mr. OLDENBURG. I think you will find, sir, that in the environmental impact statement on the operation of the national wildlife refuges this is a statement. That is where I took that from; that the endangered species would get more consideration—well, would get priority consideration; and that supersedes, as we see it, the reason for which the refuge was originally acquired. Some of these are very old and longstanding.

Senator WALLOP. But in actual practical application, has there been any indication that their behavior is actually detrimental to the wildlife refuges?

Mr. OLDENBURG. I think in the State of Idaho Grays Lake National Wildlife Refuge would be a prime example of a refuge that is being managed for endangered species, that everything there is dependent upon the whooping cranes. I am totally in support of the whooping cranes. I am totally in support of the whooping crane program. However, there are a lot of other things that need consideration there also that should be given equal consideration.

Senator WALLOP. Just in general—anyone can answer—is it a fair characterization that your expertise is really not called upon to the satisfaction of your various departments?

Mr. OLDENBURG. As long as I have the microphone in front of me, I will start out.

I think Mr. Hines and Mr. Gallizioli pointed out our feelings very well when they talked about the alligator and the Mearns quail and the mountain lion, in regard to a Federal agency usurping the State's rights over these resident species and making a decision without consulting us.

This we felt has been done very repeatedly. That is why in my statement I requested consideration be given to allowing the States equal authority in making recommendations to the Secretary of the Interior on what species are to be considered as threatened or endangered.

Mr. GALLIZIOLI. Mr. Chairman, that was certainly the case with the listing of species in the appendices. Arizona was not consulted. We had absolutely no awareness of what was involved, and we had no idea that those species would be on these appendices until the provisions of the convention were actually published and we got a copy of it.

Senator WALLOP. This is the international convention?

Mr. GALLIZIOLI. Yes, sir.

Senator WALLOP. I was very concerned that the Fish and Wildlife Service would put our country's posture as supportive of groups I

guess who influence that convention over the recommendations of local experts.

Is that really what is happening? How do they get to the point where they put the quail or, as I understand it, the bighorn sheep under similar consideration?

Mr. GALLIZIOLI. Yes, sir. I wish I could answer that question because what we have been unable to ascertain is who put these species on the convention list and why they were placed there. Perhaps somebody from the Fish and Wildlife Service could answer the question. But we have been unable to get an answer to that question.

Mr. HINES. I would like to clarify one point. Of course, we were in concurrence with the alligator being put on the list when it was. We were consulted. Our major problem has been with the delisting process.

Senator WALLOP. As receiving what; little consideration?

Mr. HINES. It did receive consideration. It is reduced to threatened now, but it took a long time.

Senator WALLOP. I must say that if I had an alligator under my closeline, I would be more than half anxious for some speed in this. But many of you have mentioned that the Fish and Wildlife Service is responding, at least in your opinion, more to emotional charges by I think you used the term less informed conservation groups than they are to hard data.

What do you think this subcommittee or Congress might do to focus their attention more on that rather than numbers of participants in hearings?

Mr. OLDENBURG. It is spelled out in the law that I read in section 4 that the Secretary of the Interior is required to base these judgments on the best scientific and commercial data available.

I think it is there, if it were implemented and carried out. Maybe the intent needs to be spelled out just a bit further.

Ms. TAYLOR. I was just going to say that just because a great many people testified, as you know, doesn't mean that the testimony would be equally weighted. I doubt very much if that has happened.

An example of the way species status is examined under our program occurred the day before I came here. We received a copy of a letter to Interior from an expert on Caspian terns. He had been away from the field for some time but is a prominent expert on the species.

He wrote a letter to Interior saying this species should be considered for threatened status and sent a copy to the Michigan Department of Natural Resources.

I immediately did a lot of checking and running and called the chairman of our technical committee on birds to review the possibility that this was true. It is currently on Michigan's "scarce" list.

No sooner had I completed all of this when the Department of the Interior regional office in Minneapolis called me and said, "What do you know about Caspian terns?"

I think if there is a strong relationship between the regional office and the States through cooperative agreements, that a lot of problems would be alleviated. The worst of it has come in the early stages of the endangered species program when we are not yet organized to

work together. As time goes by we will be better organized to work together.

As far as data is concerned, there is always the challenge by protectionist people without data that the wildlife organizations in the States are using biased data. So there is a constant argument there. So we need to generate different kinds of groups with data. Perhaps some of these organizations will wake up to this.

Senator WALLOP. Does Michigan have a major predator species that is on the endangered list?

Ms. TAYLOR. Yes, sir; the wolf.

Senator WALLOP. Is it in an area near domestic livestock production or anything?

Ms. TAYLOR. There are a few wolves in Michigan's upper peninsula. They are not doing well at all.

Right now our approach is a survey in the Upper Peninsula conducted by the Northern Michigan University to see how the people feel about the wolves. It appears people are occasionally shooting wolves by mistake instead of coyotes.

We feel that the wolf is a potential social problem as far as wolves and people together. Michigan's Upper Peninsula is not a wilderness, but it is very thinly populated. This is an area where we have a great deal of study and public discussion. There is a wolf recovery team, by the way, which is examining this problem.

Senator WALLOP. Would you think it might be a fair assessment, though, that one of the reasons a State such as Michigan can enter into more easily a cooperative agreement is because you don't have a domestic human problem such as Florida might have with the alligators or Minnesota has with wolves or Idaho might have with wolves or mountain lions? Do you think it is easier for a State to get into a cooperative agreement if you don't have that pressure on the legislature?

Ms. TAYLOR. I am sure it is. But I would like to point out the opposite situation once again. Work with the military is going on with the warbler nesting sites. The problem has been one of defending the extinction of the warbler, a species which is frequently proposed to be the State bird. It is a very popular bird-watching species. For many years there was a great deal of difficulty about having birds on the firing range at the National Guard establishment. The Endangered Species Act of 1973 changed the attitude of the military toward the species.

Senator WALLOP. It is a great problem for the birds as well.

Ms. TAYLOR. We had a great problem there. It wasn't a local people problem. Because it was an agency problem, the act helped a great deal. So a cooperative agreement eased pressure on the State legislature with respect to an endangered species problem.

You are absolutely right. Michigan has had less problem because we haven't had the predator problem. If we have a great increase in wolves in northern Michigan, we will have something to face.

Mr. GOTTSCHALK. I have discussed the problem that you raised with many States over the last several years. Of course, you know my background in the Fish and Wildlife Service. I was on the ground floor when these things were being discussed.

But I think to give the devil his due, so to speak, the Fish and Wildlife Service has been under tremendous pressure to get a very complicated and far-reaching bill organized and developed into an active program.

In the process, there have been delays. There have been legal interpretations forced upon Fish and Wildlife Service by the solicitors, that they haven't always agreed with. There has been a lot of tension in the development of the program. I think all of these things have had an effect on the way the Fish and Wildlife Service has performed.

But if I were to respond to your question beyond what you already heard here, I would say I think the committee is doing the most it can and should be doing. I certainly don't think that any of the States want to see any attempt made to change the language. It would be hard to imagine any language stronger than that in the bill dealing with Federal-State cooperation. It is extremely strong language, powerful.

I think we need a lot of attention to that at higher levels in the Department than the Fish and Wildlife Service. The States all admire and respect Director Greenwalt and Mr. Schreiner. They feel they have knocked themselves out trying to cooperate. But they feel there have been problems above them within the Department and problems below them staffwise that have been very difficult for them to handle. But I think most of the States feel that perhaps we have seen a change and that there will be some improvement.

Senator WALLOP. Before you put that away, because this whole thing has intrigued me, the relationship with the State legislatures and trying to get statutes that are acceptable to the Fish and Wildlife Service; but is it a fair characterization then to say that States have to provide by law what the Fish and Wildlife Service provides by regulation?

I mean, you were saying that States are reluctant to get into the forecasting business before they enter into cooperative agreements for some kind of species about which they may not know and may come flying in and land on a pond somewhere, or something, and create problems for them otherwise. Their law, as I understand you, has to accommodate almost any eventuality that can be provided by regulations or additions to the list.

Mr. GOTTSCHALK. That is my understanding, sir. It is a fact that the States are required to have comprehensive statutory authority and the Federal Government operates under regulations that may be promulgated by the Secretary of the Interior. So there is that difference.

Senator WALLOP. That is what I was trying to get at.

Mr. GOTTSCHALK. Yes, sir.

Senator WALLOP. Senator McClure?

Senator MCCLURE. My question is a correlative one; what is the relationship between the establishment of a species on the endangered or threatened species list and the correlative question of the designation of critical habitat? This question, as Mr. Oldenberg knows, arose in Idaho when there was a proposed designation of the critical habitat of the grizzly bear outside of Yellowstone National Park in areas that are now in multiple use.

I think each of us is concerned with the future extent of the program and whether or not we are going to try in each of these instances to extend the range of threatened or endangered species back into areas where they existed prior to this time.

As I recall, the Governor of Idaho at that time testified in strong opposition to the designation of critical habitat upon the basis that the proposal was not based upon any scientific fact or did not comport with scientific evidence.

Mr. Oldenburg, could you comment on that question of the extension of the area in the designation of critical habitat where the species does not exist or does not now really range normally?

Mr. OLDENBURG. Senator McClure, as you recall, we opposed at the critical habitat hearings in Idaho the reintroduction into this, what was termed by some people, historic range of the grizzly bear. I would just have to guess that the grizzly bear and people are probably about the most incompatible two species I know of.

If you talk about introducing the grizzly bear into Bitterroot or the Idaho primitive area, or anywhere else in Idaho where they do not currently exist, the people are just not willing to accept that. They are very willing to accept the fact of where they are at now.

I think most people are in support of maintaining the populations we have now. However, they do not want them expanded. This was our position also.

Senator McCLURE. I would assume from your answer and from the position the people in Idaho have taken in the past that you would feel that the grizzly bear will not go downhill from where it is now without the addition of critical habitat areas.

Mr. OLDENBURG. With the consideration that the bear has now been given, the cooperation we have received from everybody involved—we are working very closely with the sheepmen in the Targhee National Forest adjacent to Yellowstone. In fact, we are gathering information we have never been able to get before by working with these people, with the Forest Service.

I think things are going pretty well in those areas where we have grizzly bears. I do not see them going downhill. In fact, we are recording some pretty good reproduction both there and in north Idaho at the present time.

Senator McCLURE. There was a similar outcry a number of years ago when there was talk of reintroduction of the grizzly on the Upper Priest near the Canada-Idaho-Washington State borders. However, the proposal for reintroduction was dropped as a result of this reaction. I assume this occurs only where there is a real conflict.

You have talked about the reintroduction of the peregrine falcon and whooping crane. There has been no adverse reaction due to introduction of these species into other areas because the conflict is less, I assume. Is that correct?

Mr. OLDENBURG. There has been no adverse reaction, except there was a group of, as they referred to here previously, uninformed conservationists that wanted the area in southeast Idaho designated as critical habitat for whooping cranes. Their only justification for it was to get the phosphate mining stopped. I don't think they are really interested

in the whooping cranes; because if they had known the needs of the whooping crane in that area, they would have known that the areas they are talking about are not where whooping cranes are found.

Senator McCLURE. I think whenever that happens, when they attempt to use this Endangered Species Act to accomplish something else, they call into question the continued viability of the act. I think they will destroy what they are trying to protect. Perhaps the temptation is too great to resist; I don't know.

How do you see the Endangered Species Act relating to the traditional responsibility of the State Fish and Game management of resident wildlife? Do any of you State management agency people find any unacceptable conflict between that traditional concept?

Mr. OLDENBURG. We talked about that briefly here before. We feel that we have to have total participation at any time we are talking about a resident species—I think that is the best summary I can give you—by the States in which the species are located. That should be equal to the Fish and Wildlife Service's participation.

Senator McCLURE. I have consistently contended for the 10 years I have been in Congress that the Federal management agencies have control and responsibility for habitat on public lands. Certainly they do this in consultation with the States, and I think the States are cooperating more in habitat management programs on Federal lands now than they used to do. They are also doing it for nongame species in a way that they did not in prior years. But the management of the resident fish and wildlife species was the primary responsibility of the State, with the secondary role being in the public land management. This I use as the background for my questions concerning the Endangered Species Act.

We have recognized the right of the Federal Government to preempt in areas where there are international movements or nonresident species. There have been congressional enactments to preempt the State's role with regard to resident fish and wildlife so far as national parks and fish and wildlife refuges are concerned, and there is Federal preemption in the Endangered Species Act.

As I understand your comments just now, and earlier as well, you want a coextensive role in the Endangered Species Act. Is that correct? I would invite the comments from any members of the panel.

Mr. GALLIZIOLI. Mr. Chairman, Senator McClure, speaking for Arizona, we would much prefer to have the authority over resident species restored to the States. I think I could probably speak for all the States and say that one of the burrs under all our saddles with the Endangered Species Act is the fact that it did preempt the traditional State authority over resident species. By resident I mean the old meaning of the term resident, as opposed to migratory, not resident as interpreted by the Endangered Species Act.

Senator WALLOP. You made a statement that I thought was interesting, and I would just like a brief expansion on it. I think you made the statement that the enactment of the 1973 act actually hindered Arizona's species protection program. Could you expand on that?

Mr. GALLIZIOLI. Yes, sir. We had ongoing programs for two species of fish: the Gila topminnow and the Arizona trout. Both were listed as endangered.

When the 1973 act was passed, the prohibitions inherent in the provisions of that act put a stop to our program because it necessitated the capture of fish in the streams and movement to our hatcheries for propagation purposes and the transportation of fish back and forth across the State.

This was not possible without permits from the Fish and Wildlife Service once the act was passed. It took some time before we got the necessary permits. Our programs for those two species essentially ground to a halt until we got all of the redtape properly sliced.

Senator WALLOP. Thank you.

Mr. HINES. I am Tommy Hines from Florida.

One comment I might make in regard to this is one of the necessary components of any management program is knowledge or data concerning that species. In most cases the State wildlife agency is going to be the agency that is responsible for developing such knowledge.

So in practical application, it seems to me that it is absolutely necessary that the State have more than equal responsibility in the management of resident species.

Senator McCLURE. Any other comments?

Ms. TAYLOR. Yes. As you say, in practical application, there shouldn't be a problem with things that are working, the act is working, and the way the cooperative agreement goes, if everyone has a cooperative agreement. I think this is one of the essential elements. We should all have cooperative agreements.

If the Federal Government should preempt our decision on endangered species in Michigan, we would be very upset. But you have to remember if another State let a species go extinct that the Federal Government wanted to have listed, we would be upset.

Senator McCLURE. While reading a publication of the Philadelphia Academy of Sciences I was surprised at the list of fish that are threatened or endangered and the reasons why they are. In a high proportion of the cases, they have listed the introduction of nonnative species as one of the major reasons why that particular species of fish is threatened or endangered.

I would suspect in many of those instances the introduced species was introduced by either fish and wildlife agencies or by fish and game groups that wanted more sports fishing or a different type of sports fishing. There might then be a conflict between the management goals.

In that event, if there were a conflict between management goals, who should control?

I noticed you reached for the mike when I asked the last question. You didn't act like you wanted to answer this one.

Mr. GOTTSCHALK. Senator, I was going to answer the previous question. I would like the State representatives to answer the last question you posed.

What you say is certainly true. There was a time when the transplantation of wildlife was a practice indulged in by all of the best people in the world.

We now know that that had disastrous effects upon the native biota. I can't think of a better or more classic example than the State of Hawaii where most of the species which have become endangered have become that way because of the devastating effect of introduced species.

I remember a few years ago when the Fish and Wildlife Service had a rather head-to-head tussle with the State of Wyoming because the State had established a comprehensive fishery management plan designed to perpetuate the native trout of that State. The Fish and Wildlife Service happened to have a couple of Federal hatcheries out there. The State had no control over the disposition of fish from those hatcheries. That was the issue—whether the Federal Government would determine the location of planting the fish from these hatcheries or whether the State would.

That particular argument was negotiated in favor of the State; because when you came right down to it, at that point the Federal Government had no legal responsibility for determining where fish should be planted in the State of Wyoming.

That was the State of Wyoming's responsibility, and we respected that. That is the way it went.

But as has been pointed out, there has been a preemption in the case of several acts, including the Endangered Species Act.

Now I will yield to others on the last question.

Mr. EVANS. I might comment, if I may. I am Bob Evans from Colorado.

We realize, of course, that the rainbow trout and brown trout are not native to Colorado waters. However, our hatchery facilities are directed toward the production of rainbow trout.

Here it becomes a matter of, if you want to provide the fishery and the fishing for the fishermen, then you raise something that you can produce economically and rapidly. Of course, this is what the thinking was at the time these species were introduced.

To give you an example of how this affects some of the native species, we have the native greenback cutthroat in Colorado. We were locating these fish before they were placed on the endangered species list.

I would say this, that one thing the Endangered Species Act did was to get us on the ball in knowing more closely what we had in the bank, so to speak. It was beneficial from that standpoint.

But we located the greenback cutthroat trout and made plans to rear some and transplant them into other streams. However, our fishermen don't know the difference between a greenback and other species of trout. Are we going to stock them and then close the river to fishing because they are on the endangered species list? I think not.

We have to weigh one thing against the other. The rainbow trout was brought into Colorado from Sacramento, Calif., and the eastern brook trout and the German brown was also brought in. Those are now resident Colorado fishes. We would like to manage them.

Mr. OLDENBURG. Another example, Senator, is the current situation in Idaho where the Federal Government is managing the so-called wild horses. I would refer to them as feral horses. I do not accept their term wild horses.

They are destroying the native resident and local antelope herd. They are in the process of encroaching to within about 2 miles from the bighorn sheep population winter range, which is extremely critical to the survival of that sheep range. We have absolutely no authority over that situation.

The reproduction of that antelope herd, which was above 400 animals last year, was down to nine fawns per hundred does. Any time you get below 50 fawns per 100 does in an antelope herd, you are in a disastrous situation. And there is nothing we can do about it.

Senator McCURE. Unfortunately, that touches on another area of Federal preemption where we are still trying to assess the consequences and find some way of answering the public pressures.

I would refer back to what you said a moment ago: Sometimes uninformed public pressures don't recognize the damage that is happening.

I am familiar with that particular sheep herd that you are talking about. It became a matter of intense interest a few years ago because of the conflict between the domestic animals and the wild sheep herd. When we move and get the domestic animals reduced in an area so the sheep herd can live, the horse herd is going to destroy the sheep herd. There has to be an answer.

I respect the difficulty that you have where there is Federal preemption that conflicts with State management goals. Is there anything that we should do with the Endangered Species Act to enhance your ability to comply with the goals of the act, recognizing that the protection of a threatened or endangered species is a valid goal and a matter of concern to all of us. This isn't a State-Federal matter. I am sure the State is equally concerned.

Is there anything that ought to be done with the act to change the framework of the management without altering its goals?

Mr. GOTTSCHALK. Senator, we have suggested an amendment that would make it possible for States who do not have the statutory authority for the protection of all forms of plants or wildlife listed by the Secretary to participate to the extent that their State laws do protect endangered wildlife. That is a special recommendation that we have made. We would be very pleased to be called upon to assist your staff in any way possible to bring that about.

Senator McCURE. Thank you.

Any other comments?

Thank you very, very much.

Senator WALLOP. We want to thank the panel very much. It has been very informative and interesting.

The next panel is a Federal agency panel: Mr. Keith Schreiner, Associate Director for Federal Assistance, U.S. Fish and Wildlife Service; Mr. Jack W. Gehringer, Deputy Director, National Marine Fisheries Service; Mr. Roman H. Koenings, Assistant Director for Resources, Bureau of Land Management; Mr. Aubrey J. Wagner, Chairman, Tennessee Valley Authority; Mr. John G. Wofford, Deputy General Counsel, Department of Transportation; Ms. Rebecca Hanmer, Director, Office of Federal Activities, Environmental Protection Agency; Mr. John McGuire, Chief, U.S. Forest Service.

Senator McCURE. Mr. Chairman, might I explain to these gentlemen that I have been in the markup session on the Water Pollution Control Act amendments. There is a matter pending right now. I hope to get back while you are still there, but I have to go there for a few minutes.

Senator WALLOP. Mr. Schreiner?

STATEMENTS OF KEITH SCHREINER, ASSOCIATE DIRECTOR FOR FEDERAL ASSISTANCE, U.S. FISH AND WILDLIFE SERVICE; JACK W. GEHRINGER, DEPUTY DIRECTOR, NATIONAL MARINE FISHERIES SERVICE; ROMAN H. KOENINGS, ASSISTANT DIRECTOR FOR RESOURCES, BUREAU OF LAND MANAGEMENT; AUBREY J. WAGNER, TENNESSEE VALLEY AUTHORITY; JOHN G. WOFFORD, DEPUTY GENERAL COUNSEL, DEPARTMENT OF TRANSPORTATION; REBECCA HANMER, DIRECTOR, OFFICE OF FEDERAL ACTIVITIES, ENVIRONMENTAL PROTECTION AGENCY; JOHN MCGUIRE, CHIEF, U.S. FOREST SERVICE

Mr. SCHREINER. Mr. Chairman, in the interest of time, I will simply acknowledge Assistant Secretary Herbst's remarks of the opening morning as being the position of the U.S. Fish and Wildlife Service, and I will stand by for questions.

Senator WALLOP. Thank you, sir.

Mr. Gehringer?

STATEMENT OF JACK W. GEHRINGER

Mr. GEHRINGER. Mr. Chairman, the other day I gave prepared testimony, and what I thought I would like to do is just address a few very quick remarks with respect to that statement and then turn it over for questions.

The National Marine Fisheries Service's involvement under section 7 of the act is small compared to the Fish and Wildlife Service. Presently we are responsible for 14 species under the act and the Fish and Wildlife Service for in excess of 600.

We have reviewed a number of significant agency actions, but the fact that we have not at this time designated any critical habitat has meant we haven't had that much involvement. Most of these consultations have occurred through the NEPA process and involve either the Corps of Engineers for such things as maintenance dredging, and beach refurbishing; the Environmental Protection Agency concerning powerplants, sewage treatment, and tidal projects; and also within the Department of Commerce and the NOAA Office of Coastal Zone Management.

We have reviewed fishery management plans under the Fishery Conservation and Management Act in this respect. To the best of our knowledge, we are unaware of any unresolvable conflicts that have resulted from these consultations.

As I said the other day, we believe that section 7 as presently written does allow sufficient latitude through consultation to resolve problems.

That would be the limit of my formal remarks at this time.

Senator WALLOP. Thank you.

Incidentally, I don't wish to encourage long-windedness, but we can go on until 1:00. I don't mean by that to stretch out other plans you might have. We will go on in the interest of fairness to the panel.

Mr. Koenings?

STATEMENT OF ROMAN H. KOENINGS

Mr. KOENINGS. Thank you, Mr. Chairman. As you are aware, the Bureau of Land Management has responsibility for 474 million acres of land. About 175 million of these acres are in the lower 48 States. Presently 30 species of federally listed threatened and endangered fauna and an undetermined number of the proposed 1,700 species of plants are found on lands administered by the Bureau.

The BLM is meeting its responsibilities to assure compliance with the Endangered Species Act of 1973 in several basic ways which I will outline briefly.

We have had some problems in relation to the coordination responsibilities of the Endangered Species Act, but to date we haven't found any that we could not resolve.

We believe that significant progress has been made in implementing section 7 of the Endangered Species Act. And, we will expand and perfect the program through undertaking new activities during the next 3 years that are directly related to the objectives of the act.

Our present planning schedule calls for completion or updating of habitat inventories on 175 million acres in the lower 48 States. Data and information on threatened or endangered flora and fauna is an integral part of such inventories.

Under current manpower and funding, critical habitat inventories on the public lands could be completed in about 15 years. This timetable is currently under review as a result of the President's Environmental Message. We intend to move as expeditiously as possible.

We will also complete implementation of a screening system to review and analyze all Bureau programs and actions authorized by BLM to assure that each is in compliance with the Endangered Species Act. This includes programs and actions relating to livestock, grazing, mining, fire management, timber harvesting, rights-of-way, land disposal, and recreation.

Priority will also be given to implementing habitat management plans in cooperation with State wildlife agencies and other appropriate groups for threatened and endangered wildlife to the extent funds and manpower permit.

We believe that the foundation of section 7 has been laid and that adequate consultation and planning can assist in avoiding potential problems. It is our policy that our responsibilities under the act can be coordinated and harmonized with other program responsibilities. We are aware, however, that BLM, with its multiple-use mission and often seemingly competing programs, will face controversial resource issues.

The recently enacted Federal Land Policy and Management Act of 1976 recognizes various resource values, including wildlife, provides flexibility in managing the public lands under the principles of multiple use and sustained yield, and specifically states that nothing therein supersedes any Federal law on endangered species.

However, the Bureau also operates under other laws which permit less flexibility and can, in certain instances, be more difficult to reconcile with requirements of the Endangered Species Act. The Mining Law of 1872, the Wilderness Act, and some provisions of the Alaska

Native Claims Settlement Act and the Mineral Leasing Act are examples of such laws. With respect to these laws, we will fully utilize available authority to minimize adverse impacts on endangered and threatened species.

In summary, the Bureau has already taken important steps to assure that the requirements of the Endangered Species Act are met. We believe that the steps we have taken will facilitate resolution of many problems that occur. However, we must anticipate and be prepared for difficult situations that will arise as the demand for mineral, energy, and other resource development increases.

This concludes my remarks. I would be happy to answer any questions you might have.

Senator WALLON. Thank you very much.

[Prepared statement follows:]

STATEMENT OF ROMAN H. KOENINGS, ASSISTANT DIRECTOR, RESOURCES, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR, BEFORE THE SUBCOMMITTEE ON RESOURCE PROTECTION OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS OF THE UNITED STATES SENATE ON IMPLEMENTATION OF SECTION 7 OF THE ENDANGERED SPECIES ACT OF 1973.

Mr. Chairman:

I am pleased to appear before you this morning to review and discuss with you some of the Bureau of Land Management's responsibilities under the Endangered Species Act of 1973 and to describe our experience under Section 7 of the Act. I will mention actions already taken as well as our plans for further implementation of the requirements of Section 7.

Section 7 of the Endangered Species Act requires that the Secretary of the Interior review programs administered by him and utilize such programs in furtherance of the purposes of the Act. It further requires that all other Federal departments and agencies in consultation with the Secretary, use their authorities to further the purposes of the Act by carrying out programs for the conservation of endangered and threatened species and by taking actions necessary to insure that their actions do not jeopardize the continued existence of such species or result in destruction or modification of critical habitat. Thus, the Bureau of Land Management has key responsibilities with respect to the continued existence of threatened and endangered flora and fauna on the 474 million acres of public lands.

Presently, some 30 species of Federally listed threatened and endangered fauna and an undetermined number of the proposed 1700 species of plants can be found on lands that the Bureau administers. The Bureau is moving to meet these responsibilities and to assure compliance with the Endangered Species Act of 1973 in three basic ways.

Through our land use planning process and imposition of conditions and stipulations in permits, leases and other use authorizations, we attempt to assure that plans and actions initiated by or involving the BLM do not jeopardize the continued existence of threatened and endangered species, or adversely modify their critical habitats.

In addition, we are taking positive action to identify habitat and implement wildlife habitat management plans and other land use decisions, reached through our planning process, to protect and improve habitat for listed species.

Finally, we actively seek coordination with State wildlife agencies, the Fish and Wildlife Service, and the Forest Service to exchange information and coordinate joint efforts in carrying out our responsibilities.

It may be informative for me to summarize for you some specific illustrative examples of our activities in connection with the Endangered Species Act. In order to implement the Act and relevant provisions of the Federal Land Policy and Management Act of 1976 and other authorities, as part of our BLM manual system, we have developed policies and specific field guidance for the conservation of sensitive, threatened, and endangered wildlife. This manual section describes the responsibilities

of various officials of the Bureau with respect to such wildlife and relates these responsibilities and concerns to the implementation of various programs and activities.

In addition, we have entered into a memorandum of understanding with the Fish and Wildlife Service relative to coordination in the nonemergency critical habitat determinations pursuant to Section 7 of the Act. This memorandum of understanding establishes a procedure to assure that the Service has the benefit of BLM's data and views relevant to critical habitat determinations on public lands and to assure coordination and further discussion, if necessary, prior to a determination of critical habitat by the Service. BLM also has biologists participating as members on ten of the fifteen Recovery Teams operating on Western lands.

In our habitat management program we have completed habitat improvements to benefit about 30 listed species. This includes restoration of the historic San Simon Cienega, an important wetlands habitat for the endangered Mexican duck. Incidentally, this project was the first Federal restoration project for an endangered species and was initiated shortly after passage of the 1966 Endangered Species Act. In addition, we have funded the captive rearing of peregrine falcons in Colorado and the subsequent introduction of these birds into protected and managed habitats in Idaho and Colorado. Other habitat management and improvement projects include programs for the Lahontan cutthroat trout, several species of desert pupfish, Utah prairie dog, and the Arctic peregrine falcon.

We have expended \$432,000 in FY 1976 and \$832,000 in FY 1977 for development and implementation of on-the-ground projects and data gathering activities, specifically, for listed species.

We believe we have made significant progress in implementing Section 7 of the Endangered Species Act and we intend to expand and perfect current programs and undertake new activities during the next three years that are directly related to the objectives of the Act.

In his Environmental Message, the President pledged a governmentwide effort to identify all habitat under Federal jurisdiction or control that is critical to survival and recovery of endangered and threatened species. In support of this commitment and the President's direction to the Secretary to expedite determinations of critical habitat, we will accelerate our inventory of listed species and their habitats on public lands in the course of the Bureau's land-use planning process. The need for development of energy resources from the public lands makes the prompt inventory and determination of endangered and threatened species habitats called for by the President even more important so that we can make informed resource development plans. Our current land use planning schedule calls for basic inventories on 175 million acres of public land to complete or update Unit Resource Analysis. Data and information on threatened or endangered flora and fauna is an integral part of such inventories. Under current manpower and funding, critical habitat inventories could be completed in about 15 years. This timetable is currently under review as a result of the President's Environmental Message. In order to meet the timetable that will be established, we expect that a separate critical habitat inventory effort will have to be undertaken.

We will also complete implementation of a system to review and analyze all Bureau programs and actions authorized by BLM to assure that each is conducted in a manner that furthers the purposes of the Endangered Species Act. This is basically an in-house effort, and may lead to formal consultation or a request for assistance from the Fish and Wildlife Service on particular actions that may affect threatened and endangered species. In a related effort, we will also continue to build habitat protection and management safeguards into all BLM programs plans to the maximum extent possible. This includes livestock, mining, fire management, timber harvesting, and land disposals.

We will continue to implement habitat management plans in cooperation with State wildlife agencies and other appropriate groups, for threatened and endangered wildlife to the extent funds and manpower permit. In this regard, our objective will be to implement such plans for all listed species on the public lands as rapidly as possible.

We believe that the necessary foundation for successful implementation of Section 7 of the Endangered Species Act has been laid, and that adequate consultation and planning can avoid potential problems.

It is our expectation that our responsibilities under the Act can largely be coordinated and harmonized with other program responsibilities. However, we are aware that the BLM with its multiple use mission and often seemingly competing programs, will face controversial resource issues.

The recently enacted Federal Land Policy and Management Act of 1976 recognizes various resource values including wildlife, provides flexibility in managing the public lands under the principles of multiple use and sustained yield, and specifically states that nothing therein supersedes any Federal law on endangered species. However, the Bureau also operates under other laws which permit less flexibility and can in certain instances be more difficult to reconcile with requirements of the Endangered Species Act. The Mining Law of 1872, the Wilderness Act and some provisions of the Alaska Native Claims Settlement Act and the Mineral Leasing Act are examples of such laws. With respect to these laws we will fully utilize available authority to minimize adverse impacts on endangered and threatened species.

In summary, the Bureau has already taken important steps to assure that the requirements of the Endangered Species Act are met. We believe that the steps we have taken will facilitate resolution of many problems that occur. However, we must anticipate and be prepared for difficult situations that may arise as the demand for mineral and other resource development increases.

This concludes my prepared remarks. I will be happy to answer any questions you may have.

Senator WALLOP. Mr. Wagner?

STATEMENT OF AUBREY J. WAGNER

Mr. WAGNER. Thank you, Mr. Chairman.

Mr. Chairman, before proceeding with my statement, I should point out that the views following reflect the independent views of TVA and do not reflect the official position of the Carter administration.

My statement has been filed with the committee, and I hope will be included completely in the record.

Senator WALLOP. It will be included. [See p. 492.]

Mr. WAGNER. These hearings concerning the adequacy of the Endangered Species Act are of tremendous importance. In the broadest sense, the questions raised and examined here go to the heart of the critical quest for achieving a workable balance between the polarized extremes of unbridled growth on the one hand and a conscious attempt to severely limit or even roll back development on the other.

In this country, we have begun massive programs to clean up our land, air, and water resources, and to incorporate environmental concerns into the planning of our development programs. These are healthy changes, and we in TVA support them.

But it is also a fact that the pressures of a growing population, coupled with our deep and compelling belief in the basic right of all people to have adequate shelter, food and fiber, is going to require continued development as we strive to protect our natural resources. Unfortunately, in our desire to fix, we have overfixed.

In our rush to correct decades of environmental neglect, we as a Nation have tended to place these basic needs of man well down on our list of environmental priorities.

Forty-five years ago, TVA was given the unique responsibility of dealing with all resources under a comprehensive, unified program. This idea of balance, this recognition of the interlocking nature, not only of basic resources but of all living things, is the central issue at question today.

The key word is balance. When the Endangered Species Act was passed in December 1973, it was an attempt to add balance to a world where the scales had tipped in favor of economic growth and development to meet man's needs without regard to the loss of various species of fish, wildlife, and plants.

Our experience under the act, however, has been far different from our expectations; and, we believe, from the expectations of Congress in passing the act.

It is our belief that the Endangered Species Act, as interpreted by the Sixth Circuit Court of Appeals in the case of TVA's Tellico Dam and Reservoir project, is not predicated on balance. Indeed, balance is not permitted. There is strong evidence that the act is being used by some not to protect endangered species but to stop projects.

Tellico has become the prime illustration of the lack of flexibility that has been read into the act. Of perhaps greater importance, it serves as a clear warning of the threat to applying a balanced approach to wise resource management across the Nation. Let me summarize briefly the particulars of the Tellico case.

Construction of the Tellico project began in 1967, after extensive debate both in the region and in the Congress. This was 6 years before the Endangered Species Act became law.

The environmental aspects of the project were challenged under the National Environmental Policy Act in 1971; and after construction was halted for nearly 2 years, the courts determined that TVA's final environmental impact statement was fully adequate and in compliance with NEPA.

Tellico was more than half completed when the Endangered Species Act was passed in 1973.

The project was more than 80 percent completed when a suit was filed in February 1976 to enjoin its completion on the grounds that impoundment of the reservoir would destroy the critical habitat of the snail darter, a newly discovered 3-inch fish which had not been listed as endangered until 3 months earlier.

I might add, Mr. Chairman, that the snail darter is only 1 of 75 species of darters in Tennessee and of more than 116 species of darters in the United States.

Today the project is halted by injunction, although it stands virtually complete with more than \$105 million of the project's estimated \$116 million cost invested.

It has been halted even though Congress, with full knowledge of the environmental consequences of the project and its effect on the snail darter, urged TVA in making the appropriation for the past 2 years to complete Tellico "as promptly as possible for energy supply and flood control in the public interest."

It has been halted even though TVA has done everything possible to reconcile the continued existence of the snail darter with the completion of the project, including an apparently successful transplant of the snail darter to the Hiwassee River. The transplanted fish have reproduced two seasons now. We believe the transplant has been successful.

Mr. Chairman, something has gone awry. On a national level, the Sixth Circuit's decision means that once a determination has been made that a Federal project, or even a private project that receives Federal funds or a Federal permit, would adversely affect any endangered or threatened species or its critical habitat in any way, the project must automatically give way.

The 1973 act, rather than adding needed conservation goals to balance the preservation of endangered species with economic growth and development, has come full swing to prohibit that growth and development, regardless of the needs of man, the importance of the particular project, the importance of the species, the stage of completion or amount of public or private funds already invested in a project. The needs of endangered species must always prevail. The needs of man must always give way. The national impact of this decision could be disastrous.

The Endangered Species Act makes no distinction for the relative importance of the species involved. The act affords basically the same unlimited protection for both endangered and threatened species, as well as subspecies.

While recognizing that all forms have some scientific importance, the act makes no distinction between a snail darter and a bald eagle. It affords the same unlimited protection to all endangered species despite vast differences in their relative ecological, esthetic, economic, and social value.

TVA's difficulties with the Endangered Species Act are not limited, however, to our one experience in the Tellico case. Five other TVA projects have been impacted by the act. One is the Columbia Dam portion of the Duck River project in middle Tennessee, which may very well be stopped under the Endangered Species Act because of its effect on one species of listed mussel and two species of snails which have been proposed for listing by the Department of the Interior. I believe that has been discussed before the committee, and we won't discuss it in detail here.

Another project which may be affected by the Endangered Species Act is our Hartsville Nuclear Plant, a \$2.5 billion power project on the Cumberland River in middle Tennessee. The details are discussed in my statement. I won't bother with them, unless you are interested.

These cases illustrate the basic problems we have with the present law. First, they show the potential impact which the act can have on the needs of people in this country, for it extends to any project, public or private, which is supported by Federal funds or requires Federal approval.

Balance and flexibility are needed so that Federal agencies, in consultation with the Department of the Interior and using stated statutory guidelines, can determine what actions should be taken to protect species and whether, when conflicts develop, the project or activity should be completed and used despite the effects on those species.

The guidelines necessary to make such a determination may be difficult, but are not impossible, to quantify. Certainly rare species should be listed and protected, but the process should also include a procedure for not only identifying endangered forms but also characterizing their role and contribution to the environment.

On the one hand, consideration should be given to the relative value of the species, including not only its scientific value but also its ecological, economic, genetic, esthetic, and social value. The diversity within a particular species, group, or family would also be important, as well as the creature's range and the numbers affected.

On the other hand, consideration should be given to such factors as the importance of the project or activity, its stage of completion, money invested at the time the affected species is listed and identified as endangered by the project or activity, possible modifications in the project or activity to protect the species, the extent to which the species will be affected, and whether action such as a transplant will tend to protect the species.

Today we stand at a critical crossroads. The ultimate application of the Endangered Species Act will be an important indicator of the direction we take. In its expression of concern for all forms of life, it can be a vital tool as we seek to preserve our natural heritage while developing our resources to provide for man's needs. If left rigid and inflexible, however, it can effectively stop us dead in our tracks from realizing the fulfillment of those needs.

People, and their legitimate demands for food, clothing and shelter, are going to come. Our population forecast indicates we will have 2 million more in our Tennessee Valley region by the end of the century and 50 million more in the country.

The alternative to planning today to meet those needs is to accept the inevitability of chaos tomorrow.

Mr. Chairman, for more than four decades TVA has labored to help bring a better way of life to all people in the Tennessee Valley. But our special concern remains focused on the "ill-housed, ill-clothed, ill-fed" still among us. It is especially the needs of this too often forgotten constituency that we continue to represent here today. They, too, are endangered. And if the poor are endangered, so are we all.

Let me emphasize again that TVA fully supports the basic philosophy behind the Endangered Species Act. Maintaining diversity of life is a very important element of the overall preservation of the human environment. But the total human environment also includes a warm home, a satisfied family, good food, rewarding employment, and many other necessities.

We must seek to maintain a quality environment, while at the same time providing the needs of man. We need to preserve and protect our resources, even as we develop them. Conservation legislation, such as the Endangered Species Act, must be given the balance and flexibility to permit us to achieve these objectives.

Mr. Chairman, I have been asked, as I pointed out earlier, to point out that these are TVA's views and do not reflect the official position of the Carter administration.

Thank you for your time and your attention.

Senator WALLOR. Thank you, Mr. Wagner.

Mr. Wofford.

STATEMENT OF JOHN G. WOFFORD

Mr. WOFFORD. I am John G. Wofford, Deputy General Counsel of the Department of Transportation. I would like to summarize the statement that will be provided to the committee, if I may do that, and respond to any questions that you might have. [Statement appears at p. 503.]

I should say at the outset that I am relatively new to the Department of Transportation and, indeed, to the Federal Government. I have been in this position for a little less than 2 months. So I am not thoroughly familiar with all of the bureaucratic background of any of the issues the Department has faced under this act.

However, I have experienced some of the issues under the Endangered Species Act in several previous capacities. I have recently left the position of director of long range highway and transit planning for the Boston Region; and before that I was the associate commissioner of the Massachusetts Department of Public Works. So I have seen these issues at the metropolitan, State, and now the Federal level.

On behalf of the Department I want to state that the Department endorses the objectives of the 1973 act. We support those objectives and we find the act as written is basically a satisfactory way to deal with these issues.

In cases where conflicts cannot be resolved through the consultative process, the administration believes that case-by-case congressional review should be used to resolve the problem. Obviously we would only reach that stage in the event that the consultations do not work out. We have every hope and every intent of trying to make them work.

Indeed, before the passage of the act, the Department has been concerned for endangered species in connection with a number of our transportation projects. All the model administrations previously have tried to take into account concern for these species and adjust either the location of the project or the design of the project in order not to endanger the species.

There are two situations that illustrate problems we have had in the implementation of the act. One involves the Everglades kite at the Everglades Airport, and the other is the Mississippi sandhill crane case, related to Mississippi Interstate 10. I will not go into any detail now on those cases. They are discussed in the statement.

Let me just note, however, that in the Everglades case we have a situation where the species has moved during the time that the project has been under planning and design. Species do move. On the other hand, it takes a long time to plan and design a transportation project. Second, in the Florida case, there are other competing environmental concerns that are not in complete harmony with the concern for this particular species.

In the sandhill crane case we have a question about whether an interchange should be built, and the choice basically is whether or not to build the interchange and leave the species where it is, or build the interchange and provide alternative refuge for the species. It is also a case that relates to a transportation project that again goes way back in time, where the act and the list of species under the act that are protected came along after the project was fairly well advanced. Finally, we have the problem of secondary impact, of development that is expected to be triggered by this highway project, that in turn is feared will have a negative impact on the species itself.

Let me just make four brief general points, if I may. One, I have noted in discussing these cases that there is a need to balance the national interests; indeed, even to balance the environmental interests in any particular situation. We do feel to date that generally the consultation process and the procedures specified by the act are adequate ways to deal with those problems.

Second, we have some question about the extent of our authority to implement and pay for mitigation measures, such as purchasing a refuge. The basic concern is that the farther such a refuge gets away from the site of the project itself, the more difficulty we have of justifying it under existing transportation legislation. But again, we are going to try to interpret our existing transportation legislation in a manner to achieve just as many of those mitigation measures as we feel justifiable under that legislation.

Third, we feel—and here I may rely to some extent on my experience at the local and State levels—that the environmental process required to be carried through on a project-by-project basis produces the best set of documents, the best set of local processes, and the best set

of technical studies with which to deal with these issues concerned with endangered species. It is in the stage of a project when an environmental impact statement must be produced that the real alternatives both of location and design, are being examined for their impacts, including their impacts on endangered species. Our State Highway Departments for example, and other implementing agencies that construct transportation projects do in those environmental impact statements take into account the issue of endangered species. Therefore, in brief, we would like to have the endangered species processes integrated just as much as possible into established procedures under the National Environmental Policy Act. We think that that is the most sensible, most fair way to deal with the many levels of Federal officials, State officials, and local participants in the participatory process. They really need to be able to address all of these issues at one time.

Finally, in relationship to long-range transportation planning, we are now trying to do the required consultations just as early as possible in the stages of our project development because that is the time when you can influence the location and design of the project most efficiently. Early identification, therefore, of the species and their critical habitats is a very important objective from our point of view. Obviously, the later such issues come to light the more problems we have, given the long lead time to plan, design and construct a major transportation project.

In conclusion, let me state the Department of Transportation has a firm desire to see the act implemented promptly and efficiently. The protection of endangered species is important, and we are doing our best to comply with both the letter and the spirit of the act.

I would be happy to answer any questions. Thank you.

Senator WALLOP. Thank you.

Ms. Hanmer?

STATEMENT OF REBECCA HANMER

Ms. HANMER. Mr. Chairman, I am Rebecca Hanmer, Director of EPA's Office of Federal Activities. I will discuss some of EPA's experience to date with the Endangered Species Act and, in particular, section 7 of the act. I will submit our written testimony for the record and just summarize it here. [See p. 511.]

The goal of the Endangered Species Act is basically compatible with EPA's responsibilities for prevention and abatement of environmental degradation. It would be unfortunate for society to spend billions of dollars to clean up wastes but lose the fish and wildlife benefits of that cleanup through the destruction of habitat.

An example of this supportive relationship is the positive contribution that cleaning up our Nation's waters has had on animal populations. Rivers and lakes that were formerly detrimental to animal life are now habitable. Sturgeon populations in the Hudson River have been enhanced as a result of cleaner water.

An aggressive campaign of water cleanup along the Mississippi River in the vicinity of Minneapolis has also resulted in enhanced populations of the Higgins Eye Pearly Mussel which had been thought to be extinct.

Section 7 gives two charges to Federal agencies. The first is for Federal agencies to utilize their authorities to further the purposes of the act. The second is to insure that their actions do not jeopardize the continued existence of endangered or threatened species or modify their habitat.

In responding to these charges, EPA has introduced endangered species considerations into its program requirements, regulations, and policies. We have attempted to administer endangered species requirements as part of our overall procedures to implement the National Environmental Policy Act wherever possible.

Examples of EPA programs jointly complying with NEPA and the Endangered Species Act are EPA's wastewater treatment construction grants program, our research and development program, and solid waste management activities. Issuance of new source National Pollutant Discharge Elimination System permits or water discharge permits under the Federal Water Pollution Control Act. The environmental impact statement process, and that includes the development of assessments and the statements themselves, then serve as the principal vehicle for identifying and analyzing impacts on endangered species and for developing measures to avoid adverse effects.

We begin to consider endangered species effects as early in the planning process as possible. The EPA regulations enforcing the Federal Insecticide, Fungicide, and Rodenticide Act include that hazard to wildlife, specifically members of endangered species, is a criterion for issuance of a rebuttable presumption against registration.

EPA's guidelines for discharge of dredge or fill material pursuant to section 404(b) of the Water Act state that "no discharge will be allowed that will jeopardize the continued existence or modify the habitat of a listed species."

EPA and Interior also have a memorandum of understanding which encourages the Fish and Wildlife Service to work with EPA and the States in integrating fish and wildlife considerations into the water quality standards.

Finally, the development of areawide water quality plans under section 208 of the Federal Water Pollution Act includes endangered species considerations.

We have canvassed EPA's regional offices to determine the impact of the section 7 procedures on EPA's operating programs. The response was that there have been essentially no irresolvable cases involving endangered species and EPA programs and activities.

With regard to construction grant projects and new source NPDES permits which involve the preparation of environmental assessment statement, EPA routinely contacts the Fish and Wildlife Service or National Marine Fisheries Service personnel by telephone and asks whether there is any indication that threatened or endangered species are at issue. Generally this informal consultation results in finding of no major impact.

Promulgation of section 7 regulations will require a more formal consultation mechanism in place of the present informal modus operandi of telephone consultation. We will continue to work closely with the Fish and Wildlife Service and the National Marine Fisheries Service to implement the Endangered Species Act and to meet our responsibilities under section 7.

I might add we will also continue our work with the State Fish and Wildlife agencies. Our goal is maximum compatibility between our mutual environmental programs.

That concludes my remarks.

Senator WALLOP. Thank you very much, Ms. Hanmer.

Mr. McGuire?

STATEMENT OF JOHN MCGUIRE

Mr. MCGUIRE. Thank you, Mr. Chairman. With your permission, I will try to brief my short statement further.

In meeting its responsibilities under the act, the Forest Service has policies and programs that are aimed at the conservation of both plant and animal species. We are using here, in addition to the Endangered Species Act, our broad authorities for national forest management, forest and range research, and cooperative forestry programs.

Our objective is to achieve recovery of listed species falling under Forest Service areas of responsibility.

Our management activities include the inventory of habitats and populations within the national forest system, habitat protection and enhancement, the regulation of conflicting uses, research, and assistance to cooperators. For example, research is underway on 39 animal species at nine locations. Technical assistance is also offered to State foresters.

At least 61 wildlife species now listed by the Secretary of the Interior as endangered or threatened occur on the national forests or grasslands. Several hundred plant species proposed for listing are also within the national forest system. In fact, the most significant populations of some species are found on national forests, such as the Puerto Rican parrot, the eastern timber wolf, and the California condor. The red-cockaded woodpecker probably occurs mainly on national forests in the South. The national forests are extremely important for the grizzly bear and several fishes.

We have been very much involved in endangered species conservation, since long before the passage of the Endangered Species Act. Efforts for the California condor, for example, go back at least to 1947. Even before that, we set up special areas within the national forest system to protect what was then called vanishing species. Those efforts go back to the 1930's.

The Forest Service has cooperated with and supported the Secretary of Interior in providing information needed to make his determinations, in identifying critical habitats, and in developing recovery plans through the recovery team process.

We feel that it is through research activities and habitat protection and management that we can make our most substantial contributions. We have been attempting in many cases to do just that.

For example, Forest Service research has contributed substantially to knowledge of species such as the bald eagle, the bachman's warbler, the grizzly bear, and the red-cockaded woodpecker.

I think that the strength of the act lies in its successful application on a day-to-day basis by our people in the field. We want these people to be committed to the spirit and the intent of this law. Their day-to-

day efforts have prevented the extinction of some species, or at least reversed downward trends. For species like the American alligator, the eastern timber wolf, the kirtland's warbler, the southern bald eagle, and perhaps the peregrine falcon.

It is with this in mind that I would like to voice several concerns. First, I think we in the Federal agencies have to continually work to create and maintain positive and constructive attitudes among our employees and cooperators regarding the conservation of species and the ecosystems on which they depend. We need to find some better ways to avoid increasing antagonism toward the act or toward its implementation. I think the Federal agencies have that responsibility.

Second, we need to be aware of potential conflicts between the Freedom of Information Act and the Endangered Species Act.

Third, we need to use procedures for consultation in such a way as to assure the timely flow of information vital to the decisionmaking process.

Finally, we need to concentrate our efforts on those species, habitats, situations, and human uses which are most critical to the welfare of the species and to the preservation of critical habitat.

Thank you, Mr. Chairman.

Senator WALLOP. Thank you, Mr. McGuire.

I have a question right away while it is fresh on my mind that I would like to direct to you, and that is your second statement was that we have to be aware of the potential conflict in the Freedom of Information Act and the Endangered Species Act. Could you elaborate on that, please?

Mr. McGUIRE. Under the Freedom of Information Act, we fear that we may be required to release information about a species location that we think should not be released; the location of eagle or falcon nests or something of that nature.

It is the same problem we have with archeological information. We have pictographs and other archeological findings that are hard to protect. If we publicize their location, there is danger of vandalism.

Also, there is the problem that biologists who are working with the species and gathering information are increasingly reluctant to put down very much in writing for fear that they would have to release some vital information that could be detrimental to the species. This is unfortunate, especially in the case of the land manager, because he needs to know where these critical places are so his decisions are not counterproductive to the endangered species habitat needs. It hasn't come to the courts yet, but we could have future cases that would give us difficulty.

Senator WALLOP. It is a very interesting comment. It is something that I am sure did not cross the minds of those who drafted the act.

Among the suggested questions that have come by is one which was to have been directed to one member of the panel, but I would like to roll it over and just ask it as a generality. Is it a practice or an order of the administration that your statements be cleared before being delivered?

Mr. WOFFORD. My statement has been cleared.

Mr. WAGNER. I presume it is my statement that raised the question. It has been the practice of this administration and the previous administration, as far as my memory goes, which is back 30 or 40 years,

to require that the statements presented before a congressional committee in hearings such as this are presented to the Office of Management and Budget, formerly the Bureau of the Budget, for clearance before they come up. My statement was presented to them.

Senator WALLOP. I am not really trying to get into that. I have another problem on my mind.

What is the nature of the clearance? Is it for its effect, on the budget or for its effect on other things?

Mr. McGUIRE. I suppose everyone might give you a slightly different answer to that, Mr. Chairman. It is for consistency as to the administration's position, to be sure we are consistent, for example, with the President's environmental message. I am sure all the rest of the agencies approached it the same way we did.

We wrote a draft and it was reviewed by the author, OMB, and CEQ. I suspect all the statements with the possible exception of Mr. Wagner's cleared that way.

Mr. WAGNER. Mine was cleared that way, but they asked me to put the disclaimer on.

Senator WALLOP. You would be allowed to deliver it presumably any way you wished, but they might require a disclaimer; is that right? Or is it a fact that there is a little dictative body up there that does all the thinking for each agency?

Mr. McGUIRE. I won't speak for you, Mr. Wagner, but I think the rest of us would not be up here if we didn't have the cleared statements. We speak for the administration. That is our position. If there are some particular points involving personal views we would not put them in the statement.

Senator WALLOP. Would you feel free to give them?

Mr. McGUIRE. If you ask for them, yes.

Senator WALLOP. Put the finger on the red button.

Mr. WAGNER. Mr. Chairman, in my experience, in the past, occasionally questions have been raised by the statement which we have changed where we agreed that the statement was not clear or something like that. But this is not the first statement I have submitted where I have been asked to point out that it did not necessarily reflect the views of the administration.

Senator WALLOP. You are defensive about something I am not offensive about, or I might seem offensive to you.

Mr. WAGNER. No.

Senator WALLOP. I guess it is knowing a little bit in the back of my mind that we asked for expertise, assuming the Department has that, and this casts at least in my way of thinking a certain cloud over the expertise that might otherwise be forthcoming.

I guess it is probably not unique to this administration, but it does make you wonder if it is really worthwhile having Federal agencies come and testify for any reason if we can't get the benefit of the real skills that dwell within that agency.

Mr. McGUIRE. Mr. Chairman, if I might volunteer again for the others, that is not our intention. Our intention is first to communicate to the committee the administration's views. If you want an answer to a question involving expertise, that is not a policy matter. We are fully prepared to answer any such question. So we certainly do not want to impede the work of this committee in any way.

Senator WALLOP. There are some questions. I will see if I can't find the button.

The first battery of buttons surrounds the President's May 23 memorandum of environmental messages. The message in the subsequent Executive order concerning the Endangered Species Act has said each agency survey their lands and authorities to insure that no conflicts exist between uses of these lands and the Endangered Species Act.

I guess basically first it would be BLM and then the Forest Service. Do you feel this approach will eliminate the potential for conflicts such as developed heretofore?

Mr. KOENINGS. No, sir. It will not eliminate the potential for conflicts. We will get the survey done. Our best estimates are that it will take us about 15 years because of lack of manpower to do the job. In our present operations, particularly when we get into the leasing of coal and potash and granting rights of ways across public lands, we do not have this. We do not know what kinds of lease or rights-of-way requests will come in tomorrow.

Having this survey will not eliminate conflicts. It will certainly give us a leg up in working with the companies and everyone else asking for rights-of-way. Thus we can avoid, at least potentially, a great amount of conflict.

There is great value in that kind of survey and that kind of identification. If we had such surveys now we would be able to move forward to a much greater extent.

Senator WALLOP. Is it really possible in a practical manner to make a survey of all species which exist on Federal lands? I mean, is there the capability to do such a thing?

Mr. KOENINGS. Right now, no. It is not possible to make a complete survey, nor is it possible to cover all the listed species, since some of them have been identified only recently. No doubt additional species will be identified in the future so this may compound the problem. With plants alone, we are talking about 1,700 species. I am sure that both the plant and animal lists will increase in size. We are going to have to plug these species into our ongoing inventories as they are listed. Most of the conflicts involving the major species can be handled in terms of conflicts, once they are identified. But some of those species that are on the list will cause some complex problems. I am sure we don't know all of the species that are out there. To be honest, I don't think that kind of survey has been made. That would be a horrendous job.

Senator WALLOP. I am sure it is. That is the reason I asked the question. It is very horrendous. I am wondering if the capability doesn't exist, if there isn't another way of approaching it than has been offered by the administration's directors.

Mr. KOENINGS. This is the way we have been approaching it, when we get an application for a right-of-way, we make every effort to identify not only existing but potential endangered species on the area involved. I am sure we are probably missing some, but we do make the maximum effort to do this. Until the whole thing gets jelled up and going we are going to have these problems.

Senator WALLOP. Mr. McGuire, would you comment?

Mr. McGUIRE. Mr. Chairman, the President's memorandum of May 23 directs the Forest Service to do what it had already started to do. It is a matter of degree.

We have a great deal of information now. The problem is that with many species we don't know enough about the habitat requirements to know what to look for. We do know the species present and the general areas where they exist. We may not know what parts of the habitats are the critical ones.

So to gain more knowledge, we will have to keep intensifying our inventories. I think we are in pretty good shape, and have a plan for doing this. As I read the President's message he tells us to accentuate the program, which we would like to do. I don't think we are going to have too much trouble with this.

Senator WALLOP. Mr. Wagner, how about TVA?

Mr. WAGNER. Mr. Chairman, we started that activity also before the President's memorandum came out. We have done it not only on TVA lands but other lands in the valley. It is a tremendous job, as has been pointed out. I don't know that we can say we are going to get a complete list ever. We are working on it as hard and fast as we can.

Senator WALLOP. Do you feel as though TVA is cooperating with the Fish and Wildlife Service?

Mr. WAGNER. Yes, sir, I think so. We have had this one difficulty in relation to the Tellico project. But I think we are getting good cooperation otherwise.

Senator WALLOP. That wasn't my question, as to whether you are getting good cooperation. I was asking whether you were cooperating as well. There are two sides to that.

Mr. WAGNER. I meant to answer affirmatively for both sides.

Senator WALLOP. There were a number of witnesses yesterday which claimed that TVA did not cooperate or consult with the Fish and Wildlife on this matter, and in fact there was one statement that I saw some emphasis added, admittedly underlined, that you would cooperate insofar as it was possible to get dam building out of the way. Would you care to comment on that?

Mr. WAGNER. If you are talking about the Tellico Dam—

Senator WALLOP. Yes.

Mr. WAGNER. We cooperated.

Senator WALLOP. I didn't know you had more than one.

Mr. WAGNER. We have some others.

We have pursued completion of the Tellico project in accordance with the law as we interpreted it. We have gotten a bad interpretation from our standpoint from the sixth circuit court of appeals, and the project has now been stopped. We have appealed to the Supreme Court. We haven't got a decision yet. But if the sixth circuit decision stands, unless the Congress gives us relief or unless the Secretary of Interior should redesignate the critical habitat, I suppose the dam will not be filled. I can't conceive of that happening.

If there is a question whether we cooperated well or not, the gentleman who is responsible for our cooperation in TVA, Dr. Ripley, is here. I would be glad to have him respond to your question whether we cooperated.

Senator WALLOP. Mr. Schreiner, could you comment? This obviously has not been a peaceful relationship.

Mr. WAGNER. There has been disagreement.

Mr. SCHREINER. Mr. Chairman, I am, of course, reluctant to be critical of a fellow Federal agency. So let me simply say this: By and large, cooperation with other Federal agencies to date has been quite good. You must recognize, as I do that they are advocates for their own kinds of projects. For the most part Federal agencies have been cooperative and openminded, during the consultation process.

TVA was, in my view, cooperative so long as we were not discussing preventing the closing of the dam. Most of their consultation was preceded with this thought: "We will consult until you people are sick of it as long as we do not talk about not closing the dam because it is going to close January 1."

Well, that is not full cooperation, Mr. Chairman, in my view.

Senator WALLOP. I am not trying to build up a fight.

I am most concerned, because it seems to me that the whole idea of this thing is there have been hints of inflexibility on the part of the States in their relationship with Fish and Wildlife on that. There was less than hints of inflexibility on the part of TVA. It was direct accusations yesterday. There was a thought that many of these things might well have been resolved at an earlier point along the road than the impasse which led to the courts. Would you say that that is a fair characterization of what took place?

Mr. WAGNER. Mr. Chairman, let me say first of all, when the snail darter was discovered, as I pointed out, the project was well along. We pointed out to the Congress at the first opportunity that there was this problem. The Congress specifically directed us to go ahead and complete the project. We reported to the Congress and the President.

Under those circumstances, we didn't feel we had any alternative but to go ahead and complete the project. It was funded each year and funded with the knowledge that the snail darter was there, it created a problem. We disclosed it fully to the Congress in the appropriation process. The Congress still said to go ahead.

Even under these circumstances there was disagreement between TVA and the Fish and Wildlife Service as to whether the project should be stopped. The only way we could resolve it was in the courts. We let the courts resolve it, and they are doing it.

Senator WALLOP. You didn't do anything to dissuade the Congress in that position that there might be other alternatives such as suggested yesterday?

Mr. WAGNER. I don't know what was suggested yesterday, but there were a number of alternatives considered during the course of building the project. There was extensive debate before the project was undertaken.

One of the problems I have with section 7 of the Endangered Species Act is the fact that it doesn't recognize that once you examine something, you ought to go ahead unless you strike a real problem in the endangered species. We had examined it thoroughly. In 1965 the Congress delayed it for further examination and then approved it in 1966.

You can't back up when you are almost finished with the project, unless there is a real reason for it. We didn't think the snail darter was that kind of a reason. The Federal district court agreed. The circuit court of appeals reversed the district court decision.

Senator WALLOP. The statement was made yesterday that the TVA spent \$70 million more or less in violation of the Federal law on that.

Mr. WAGNER. No. I certainly think we did not spend \$70 million in violation of the Federal law. In the first place, there hasn't been that much spent since the snail darter was discovered and the Endangered Species Act was passed. The fish was not listed as endangered until the project was over 75 percent completed.

In the second place, we interpreted the law as allowing completion of the project. Our interpretation was confirmed by both Congress and the district court when they said we should finish it.

Senator WALLOP. Would you characterize your posture with the Fish and Wildlife Service as inflexible with regards to closing the gates?

Mr. WAGNER. If you are saying that we told the Fish and Wildlife Service that we wouldn't stop the dam at their request, we were inflexible in that, that is right. We took our orders from the Congress.

Senator WALLOP. You were inflexible with regard to the pursuit of other alternatives to resolve this, except on your own transplanting.

Mr. WAGNER. We investigated other alternatives during the NEPA environmental review. We investigated other alternatives before we undertook the project. But we haven't done it recently. The only option we had at the time the snail darter was listed was to scrap the entire Tellico project, which is entirely dependent on the creation of a reservoir, in favor of a totally different use of the river. That use was contrary to our instructions from Congress and in view of the advanced stage of completion of the project, was in our opinion, unreasonable.

Senator WALLOP. Would you now be willing to pursue some of the alternatives that may have been suggested or may be coming up?

Mr. WAGNER. Well, I have read in the papers that the General Accounting Office has suggested we should reexamine the cost benefits. I think it would be pointless to do that because the remaining cost is about \$11 million and the benefits are clearly far in excess of that. So it might be a waste of time. But if the Congress asked us to do it, of course we would do whatever you asked us to do.

Senator WALLOP. Mr. Schreiner, in these negotiations with TVA, at a point in time early enough to have been practical, were there alternatives considered? I guess I am talking economically practical.

Mr. SCHREINER. I am not sure I understand the question clearly, Mr. Chairman.

Senator WALLOP. I am trying to determine what the course of events was. At the time when it became known the snail darter was a species endangered under the provisions of the act, was Fish and Wildlife given any cooperation with regards to alternative means of developing that project, or was the allowing construction of that project at a point in time in fairness to TVA too far committed; too much had already been spent?

Mr. SCHREINER. It was never too far committed in our mind, Mr. Chairman. We vigorously pursued an effort with TVA to consider all alternatives, including not closing the dam, and using the project

area for other purposes. The other alternatives that were considered were not closing the dam for a period of time until we were certain that we had a population of snail darters established elsewhere. We, to the best of our ability, pursued all our alternatives. Nothing was impossible in our mind at that point in time.

Senator WALLOP. How much had been spent at that point in time; do you know?

Mr. SCHREINER. I do not remember. As I recall, the dam was better than half built by the time we started consultation. I do not know the exact figure.

Senator WALLOP. Mr. Wofford, in your statement there were some interesting potential conflicts that you pointed out the DOT faces when dealing with the act. Would you elaborate a little bit on what you think the DOT can do with regard to this or ought to be required to do or the Congress ought to be required to consider with regard to the, as you mentioned, purchase of new habitats or other ranges for these kinds of species?

Mr. WOFFORD. I don't have a specific proposal to make to you. I think we are going to try to use the existing language to the extent that we can to authorize such expenditures.

However, there comes a limit. That was my point. I think we would like the Congress to consider the question of perhaps defining those limits a bit more precisely. I think this is an issue, Mr. Chairman, that comes up in a number of situations when we must consider mitigating measures that are needed, not just for endangered species but across the whole spectrum of environmental impacts associated with the transportation and construction process.

The act directs the Department to use its authorities and it does not appear to expand our authorities. So we look to the transportation legislation as such to see if the specific expenditure is authorized under the terms of that legislation.

Senator WALLOP. Mr. Schreiner, what is the status now of the proposed grizzly bear habitat in our State?

Mr. SCHREINER. Mr. Chairman, as you know, we received extensive public comment. We testified to that before. We are about to complete a review of hundreds, perhaps thousands, of comments. As you can imagine, the comments reflect widely diversified views, and contain a considerable amount of new data.

It takes a great deal of time for a small staff like we have to deal with it. But we have about completed that initial analysis. We will go on in the very near future to completing the environmental assessment, as is required by NEPA, and then make a decision on whether or not to prepare an environmental impact statement as again required by NEPA.

If the decision is to prepare an environmental impact statement, it will be an additional year or so. If it does not require that, and I sincerely hope it does not, because of the fact that Federal agencies will be denied the right of knowing where this critical habitat is and it could affect them in a very bad way, we should be able to complete it within 60 or 90 days.

Senator WALLOP. It is a major Federal action, though, is it not?

Mr. SCHREINER. It depends entirely on how you look at it. We believe

that designating a critical habitat helps other Federal agencies as well as us comply with the mandates under section 7. It also helps prevent the kind of occurrence that happened with TVA and DOT.

It has been stated before by several Federal agencies that they need these designations made at the earliest date possible because it helps them with their long-range planning. We fully concur.

Senator WALLOP. Surely, I mean absolutely surely anything that encompasses 2 million acres—and I certainly hope that the plan is modified somewhat for them—encompassing private enterprises, leases on national parks and private inholdings, the public's access and the whole land use management, the whole management practice of it, has got to be considered a major Federal action when it affects the lives of, I don't know—it is a grizzly bear habitat. But you are talking about 10 million people visiting the national parks every year alone, let alone the population that lives there.

Mr. SCHREINER. Mr. Chairman, I don't want to appear argumentative, but in our view the simple designation; that is, the drawing of a line around an area that we believe is critical to the survival of a species, not only to its survival but to its enhancement, to the point where we can take it off the list, is a simple, straightforward administrative action which has no effect on the environment.

However, the Federal agencies that may do something inside of that critical habitat area, may or may not affect the environment which may or may not require an environmental impact statement. That is a decision which must be made by the action agency.

Senator WALLOP. Let me go back again. It is 13 million acres and it isn't an act of drawing a line on the map. When you draw the line on that map, the lives of the people in that line are affected.

Mr. SCHREINER. Federal agencies are, certainly. Whether or not the people are depends entirely upon the situation.

Senator WALLOP. I think most of us have a hard time getting out of the aegis of the Federal Government. They run the country and we traverse it. There are private inholdings in it. We are all subject to Federal agencies.

Mr. SCHREINER. I am a small private landowner, Mr. Chairman, and I would not hesitate to designate my personal property as a critical habitat.

Senator WALLOP. I would be delighted to let you live with the grizzly bear, too.

Mr. SCHREINER. It would have no effect on me whatsoever! I think the fear and apprehension of these things are infinitely greater than the facts would indicate.

Senator WALLOP. Would you describe how the initial habitat was chosen? What scientific processes were gone through?

Mr. SCHREINER. As you know, we have not completed it. We arrived at the area which we proposed by first assembling a group of Federal, State, and private experts. I believe in Denver, or somewhere in the West—Missoula I believe it was—many months ago. We encouraged them as a group to designate to the best of their ability where they thought the lines ought to be drawn for the area that should be considered critical habitat for the grizzly bear. Mind you, these were Federal agencies, State Game and Fish Departments, and private individuals who were known to be experts with the grizzly bear.

As you can imagine, opinions varied widely. But nevertheless, we got everybody's opinion, to the best of our ability, and then simply drew the best lines that we could.

The act requires that we base this designation on the best commercial and scientific data available. We feel we did that.

Senator WALLOP. You don't feel you considered more historic grizzly bear range than "critical habitat"?

Mr. SCHREINER. I do not think so at all, Mr. Chairman. I am perfectly willing to defend that proposed line up until the time that new data become available which might change it.

But the facts are, we are talking about less than 2 percent of the grizzly bear's original range that remains to them. Two percent is not very much of any wild species habitat in which to maintain a viable population. It is very near the absolute minimum, if in fact it is not too little.

Senator WALLOP. I don't think you can find anybody in my State who will agree with you it is too little. It is very difficult for anybody in my State to accept the fact that the 13 million acres is critical. There are experts, both private and public, who will suggest that the Yellowstone Park was a viable grizzly habitat. Would you comment on this?

Mr. SCHREINER. One thing for certain, Mr. Chairman; if you get enough experts together, you could prove almost anything. I think that has to be understood.

But the fact remains that our job is to try to delineate that area which will not only assure a continuing viable population but that area which will allow the bears to expand to the point where we can remove them from the list.

Now, many professionals agree—State, Federal, and private—with exactly the lines that we have drawn so far. There are those who disagree. I don't know how to say it otherwise.

I hope I am being responsive to your question. If you are saying is Yellowstone Park enough by itself, in my opinion it is not.

Senator WALLOP. Could you enlighten me as to what effects—you say this is not a major Federal action, just drawing a line on a map. What kind of effect would it have on activities like mining, timbering, camping, hiking, livestock production?

Mr. SCHREINER. Senator, again I want to be responsive to the question, but it is very difficult. I hope you will understand that. We have repeatedly said that we cannot deal with generalities. I think most Federal agencies would agree with that now. We must talk about a specific situation.

There are all kinds of differences in mines. They are located in different areas. They have different kinds of access roads into and out of the mine site. In order to discuss this in a meaningful manner, we must talk about a specific mining operation in a specific area.

Senator WALLOP. Is it fair to say then that it would have an effect?

Mr. SCHREINER. It might or might not. It might not have any effect at all. The activity might be entirely compatible with the grizzly bear and it might not jeopardize or modify, in an adverse manner, its habitat.

Senator WALLOP. Mr. McGuire, the Forest Service, not maybe officially, but certain members of the Forest Service have expressed grave reservations as to what that does to the public recreation aspects of the national forests and trail building and those kinds of activities.

Mr. McGUIRE. That is right, Mr. Chairman. I have written to Director Greenwalt and given the Forest Service's opinion on what should be the extent of this critical habitat. We are, frankly, still of a different opinion than the Fish and Wildlife Service. We have been talking. We are both attempting to gather more information. It is not just a matter of defining the critical habitat. I think even more important is specifying the kind of activity that can and cannot be tolerated.

Senator WALLOP. That is exactly right. I think it is more than just drawing a line on a map. It does have an effect for sure.

Mr. McGUIRE. In some places roads can be built and other places roads would be better not built. In some places we can continue with almost all of the grazing activities and with many of the recreation activities. But it has to be specified in different parts of the designated critical habitat area.

But frankly, we still have a different opinion than the Fish and Wildlife Service. As I say, we are working on this difference and we hope to resolve it.

Senator WALLOP. I am concerned. You say you consulted with the State Game and Fish Departments, but virtually without exception they all felt they were ignored in those hearings. Montana, Wyoming, and Idaho for certain felt very specifically any expertise they had in the matter was just cast aside.

Do you think that is a fair assessment?

Mr. SCHREINER. No, sir, not at all fair. In fact, it is inaccurate. The law requires us to consult with the State agency when we are dealing with a resident specie. We have done that in every case. We have written documents to show that.

Senator WALLOP. I am not saying you didn't consult. I am saying that they felt you didn't use any of their consultation.

Mr. SCHREINER. The facts are, as the State witnesses stated, that they do have most of the data available in most cases. Our very listing basis is frequently nearly all State data. I hope this committee does not get the impression that States universally disagree with us when we list a species. I assure you, sir, such is not the case. They infrequently disagree.

Sometimes we do have data which overrides that of the State or we do not believe they have fully interpreted that data in terms of what is required under the act. Everyone has his opinion about what is endangered and what is not. But the act is specific on when a species does or does not qualify for listing. When one of the criterion in the act is met, it is endangered, whether somebody else thinks so or not.

Mr. SCHREINER. You have to understand that Mr. Galliziolli was talking about several different things. One was the act, but mostly he was talking about the Convention. The Convention is quite a different matter. Species are put on the appendices of the Convention by all of the nations; 35 of them now I believe, Mr. Chairman. We have one vote.

I cannot answer his question right offhand, although I will be glad to, in regard to the quail. But with regard to the lion, I happen to know that it was some other country who proposed that the whole cat family be placed on appendix II, and even though the United States opposed that position the majority of the nations voted to include it, so it is now on appendix II.

Senator WALLOP. Let's expand on that. It comes back to the agency a little. The northern mountain wolf is listed as an endangered species in Wyoming and Montana.

Mr. SCHREINER. Yes.

Senator WALLOP. I am sure you know Mr. Thomas.

Mr. SCHREINER. Yes. I know him very well.

Senator WALLOP. He is a man of considerable expertise I think.

Mr. SCHREINER. Yes, sir.

Senator WALLOP. He expressed some interest in that listing because he did not know of a single wolf in Wyoming or even a reported sighting of a single wolf in Wyoming for a considerable length of time. It is probably close to half a century since the wolves were there in any numbers at all. I guess that does make that wolf imminently endangered in Wyoming for sure as long as he is not there.

But has the Fish and Wildlife Service sighted wolves in Wyoming?

Mr. SCHREINER. Yes, sir. We have in recent times. Our animal damage control people who work in the area where wolves reside have sighted them occasionally in recent times.

I might add, Mr. Chairman, there is little point in Wyoming continuing to consider the wolf a predator if it does not exist in that State.

Senator WALLOP. I don't think they consider it a predator, although I think they would if they had seen wolves that you talk about. Would you make available for the record those sightings?

Mr. SCHREINER. Yes, sir.

RESEARCH NOTE No. 4
Yellowstone National Park
April 1971

Glen F. Cole
Supervisory Research Biologist

YELLOWSTONE WOLVES (*Canis lupus irremotus*)

A known 134 wolves were killed in Yellowstone Park from 1916 to 1926. Murie (1940) considered that organized predator control during the 1920's had eliminated wolves from the park, but he remarked that "a few have been reported in recent years." Arnold (1937) published an account of observing four wolves in one day and two the following day in 1934. The animals were only occasionally mentioned as being present in the park's annual wildlife reports.

Mr. Marshall Gates, seasonal Ranger in Yellowstone, obtained an 8 mm. movie of what was judged to be a wolf in December of 1967. Subsequent observations and measurements of tracks suggested more than one animal was present. Standard procedures were established for park personnel and cooperating individuals to report observations of wolves and other data, and a search of Yellowstone's files and reports since 1930 was initiated.

From 1930 to April 1969, 104 observations of 156 wolves were reported for areas within or adjacent to the park. Only 69 observations of 105 wolves were considered sufficiently descriptive or reliable by other criteria to tabulate as reference records (Cole 1969). A total of 126 observations of 202 wolves have since been reported. By the criteria of an observer being familiar with Yellowstone coyotes and/or confirming track measurements, 57 of these more recent observations of 109 wolves were added to previous reference records. The 126 accepted observations of 214 wolves (from 230 reported observations of 358 animals) were tabulated for different areas by periods (Table 1).

Apparently the relatively few sightings that were officially reported between 1930 and 1967 led to some hesitancy in concluding that wolves were actually resident in the park. Observations by qualified persons were either buried in park files or not officially recorded. Tables 2 and 3 suggest that if observations had been tabulated on a yearly basis, it would have been possible to conclude that small numbers of wolves have been present since the 1930's.

The greater number of observations since 1968 is partly due to an established system for reporting sightings of wolves and intensified efforts to see the animals. Observations also increased because reports were received from personnel in state game departments, the U. S. Forest Service, and the Montana and Wyoming offices of the Wildlife Services Division, Bureau of Sport Fisheries and Wildlife. The data in Table 2 also suggest that the greater number of observations since 1969 may be due to one and possibly two pairs of wolves producing young. Considerations of coat color, group size, area, etc., indicate a minimum of 10 and possibly 15 different animals may be represented by the 1969 and 1970 observations.

The subject wolf is probably Canis lupus irremotus. Its presence in Yellowstone can afford an opportunity to preserve this particular subspecies which is less numerous in the United States than C. l. lycaon, which is already classed as endangered. Very small numbers of C. l. irremotus apparently occur as scattered individuals or pairs in the Rocky Mountain region between Yellowstone and Glacier Parks. Because Yellowstone has elk and bison herds which could provide sufficient food to sustain pack units, the park and adjoining U. S. Forest Service lands may afford the best opportunity to preserve a viable population of this subspecies in the United States.

The 1969 and 1970 data in Tables 1 and 3 indicate that Yellowstone's wolves range into certain areas outside park boundaries. In recent years poison bait stations (compound 1080) for coyotes have been removed from Montana areas bordering the park. However, some stations in Wyoming and Idaho are in border areas known to be used by wolves. The possibility of employing substitute control methods for coyotes in such areas should be explored with the U. S. Forest Service and the Bureau of Sport Fisheries and Wildlife.

A second concern is that the wolf is unprotected in adjoining states and can be shot in any number at any time. Since it is almost certain that C. l. irremotus will be classed as an endangered subspecies, the possibility of the U. S. Forest Service providing protection in defined areas by special regulations is being explored. This could be considered an emergency measure until protection is obtained by state laws.

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Table 1.--Numbers of wolves reported seen in different areas in Yellowstone National Park and adjoining outside areas, 1930's to March 20, 1971.

Area:	1930s	1940s	1950s	1960s	1970s	Area totals
Gallatin	0	1	0	6	0	7
Mammoth-Gardner's Hole	1	1	4	11	0	17
Upper Yellowstone	12	3	6	19	8	48
Cougar-Madison-Gibbon-Firehole	4	1	2	25	14	46
Hayden-Pelican	0	3	5	5	8	21
Shoshone-Bechler	0	2	0	0	0	2
Yellowstone Lake-Upper Snake .	0	0	1	1	0	2
Sub-totals	17	11	18	67	30	143
<u>Adjoining areas:</u>						
1. Gallatin (Northwest)	0	0	0	7	2	9
2. Mammoth (North)	6	5	2	4	10	27
3. Buffalo - Beartooth (North and Northeast)	1	0	6	9	8	24
4. East - Southeast	0	0	0	4	0	4
5. South	0	0	0	1	0	1
6. Southwest	0	0	0	1	0	1
7. Madison (West)	0	0	0	5	0	5
Sub-totals	7	5	8	31	20	71
GRAND TOTALS	24	16	26	98	50	214

Table 2.--Numbers of wolves observed as singles or in different sized groups in and adjoining Yellowstone National Park to March 20, 1971.

Year	Number of single wolves	Numbers of groups	Group sizes
1930	1		
1932		1	2
1934	1	2	1 of 2; 1 of 4
1935		1	5
1936		1	4
1937		1	3
1938	2		
1940		1	2
1942	1		
1943	3		
1944	3		
1946	1		
1947	2	1	2
1949		1	2
1950	2		
1951	1		
1952	1	2	1 of 2; 1 of 3
1953	4		
1954	1		
1956	1	1	3
1957	1	1	2
1958	5		
1960	2		
1961	1	2	1 of 2; 1 of 3
1962	1		
1963	2	2	1 of 2; 1 of 4
1964		2	2 of 3
1965	1	1	4
1966	2	1	3
1967	2	3	2 of 2; 1 of 3
1968	9	3	1 of 2; 1 of 3; 1 of 4
1969	18	8	6 of 2; 1 of 3; 1 of 5
1970	6	7	2 of 2; 3 of 4; 2 of 5
1971	7	3	2 of 3; 1 of 5

Table 3.--Average number of wolves reported seen per year inside and outside Yellowstone National Park during early periods and numbers seen in recent years since 1965.

Years	Within park	Adjoining outside areas
1930's	1.7	.7
1940's	1.1	.5
1950's	1.8	.8
1960-1964	1.6	3.0
1965	5	0
1966	4	1
1967	7	2
1968	16	2
1969	27	11
1970	12	20
1971*	18	0

* To March 20, 1971.

WOLVES IN WYOMING

Since 1971 reliable reports of wolves have continued to originate in northwestern Wyoming. The Park Service conducted a two year contract study in the Yellowstone area, and a number of observations were made. Last year, the presence of an individual wolf near the northeast corner of the Park was documented by sightings, howls, and tracks. In the fall of 1975 a USGS team observed wolves in the southeast part of the Park. Another individual was seen about the same time by Dr. Mary Meagher, a research biologist for the Park and a member of the Northern Rocky Mountain Wolf Recovery Team. Dr. Meagher states that numerous reports of wolves in the Park area are received each year, and that she considers some of them to be reliable.

An independent survey was made in the Teton area, south of Yellowstone, by Bruce Hampton, a former student of Dr. Robert Ream who is a member of the Northern Rocky Mountain Wolf Recovery Team. Hampton obtained about 15 good reports of wolves last year.

The U.S. Forest Service has published the following population estimates of wolves in national forests in Wyoming (Targhee is partly in Idaho):

	1972	1973	1974	1975	1976
Shoshone	9	7	9	5	-
Targhee	6	1	8	15	16
Bridger	4	4	6	7	5.

Senator WALLOP. Would you also make those sightings available to Mr. Thomas?

Mr. SCHREINER. Yes. I would be pleased to do that, sir.

Senator WALLOP. It does seem amazing to me when—I don't know how many agents you have in the field in Wyoming. How many people do you have in the field in Wyoming?

Mr. SCHREINER. I am not at all certain. This is not part of my regular operation, Mr. Chairman. I will find that out and supply it for the record also.

[The information requested follows:]

The U.S. Fish and Wildlife Service currently employs 59 persons in the state of Wyoming.

Animal Damage Control	7	(full-time professional)	
	9	(part-time professional)	
	3	(full-time clerical)	
			19
Biological Services	1	(full-time professional)	
	1	(part-time clerical)	
			2
Fishery Services	5	(full-time professional)	
	3	(part-time professional)	
	1	(full-time clerical)	
	1	(part-time clerical)	
			10
Hatcheries	7	(full-time professional)	
			7
Law Enforcement	1	(full-time professional)	
			1
Refuges	6	(full-time professional)	
	6	(part-time Youth Conservation Corps)	
	8	(part-time laborer)	
			20
TOTAL			59

Senator WALLOP. Yes. With our game and fish people and our own resident species of homosapiens, we probably outnumber them substantially. Nobody else has seen them.

Mr. SCHREINER. Maybe I can relieve your doubts somewhat, Mr. Chairman, by explaining the circumstances. They work with helicopters in the control of coyotes that are in the area where wolves are occasionally seen. They must be careful to make sure that they are after a coyote, because they have on rare occasions spotted wolves in the same area.

Two years ago we had a wolf killing calves in the wintertime. I believe it was in Wyoming, but it could have been on the other side of the line in Montana. We made an effort to live trap that wolf so we could X-ray its skull and determine once and for all whether it was the Rocky Mountain subspecies or some other subspecies. Unfortunately, the wolf left before we could catch it. They are usually pretty smart about things like that.

Senator WALLOP. Gentlemen, I appreciate your time this morning and your testimony. Other members of the committee may have questions they would like to submit to you for the record. We would appreciate it if you could answer them.

Thank you very much.

[Whereupon, at 1 p.m., the subcommittee was recessed, to reconvene at 9:30 a.m. on Thursday, July 28, 1977.]

[Prepared statements from today's proceedings follow:]

Statement of
International Association of Fish and
Wildlife Agencies

Before the Subcommittee on
Resource Protection
Senate Committee on Environment and Public Works

On Endangered Species Act Oversight
July 22, 1977

Mr. Chairman, I am John S. Gottschalk, Executive Vice-President of the International Association of Fish and Wildlife Agencies. I appreciate this opportunity to present the Association's views on administration of the Endangered Species Act of 1973. The International Association is a voluntary association whose government members include the wildlife agencies of all fifty states, as well as the dominion and six provincial wildlife agencies of Canada, the Commonwealth of Puerto Rico, and the Republic of Mexico. The Association promotes rational management of fish and wildlife and coordinates efforts of public agencies responsible for protection and management of the fish and wildlife of North America.

Since its founding in 1902, the Association has been concerned with the pressures on wildlife brought on by society in the Twentieth Century. By far the most significant of these, in terms of fish and wildlife conservation, is habitat destruction caused by the needs and desires of an expanding and affluent industrial society. In many ways, federal economic and social policy encourages practices that

are adverse to wildlife. With these powerful forces at large in the land, the need for countervailing actions, as exemplified by the Endangered Species Act, are essential to guarantee the preservation of our American wildlife heritage.

This basic thought, that of the desirability of preserving our native wildlife, prompts us to establish two important points that are often overlooked or disregarded. The first is that as a society it is foolhardy for us to attempt to forestall the inevitable course of evolution. The rocks are full of the fossilized remnants of myriad species that have come and gone. Long after our civilization has disappeared into the limbo of a future antiquity, the same inexorable processes of genetic creation and oblivion will continue.

We may as well recognize that it is not within the power of human beings to stay these inevitable forces of nature. But it is conceivable that we can take responsible actions to curtail the thoughtless or deliberate activities which result in the premature extermination of a species. It is to this challenge that the Endangered Species Act was directed. It recognized that within the fabric of humanity there is a will and an ability to restrain these activities which hasten the disappearance of wildlife.

It is remarkable that this ethic has developed the momentum it has displayed in recent years. In the last decade, millions of

Americans have become concerned about and want their governments to do what can be done within reason to prevent the endangerment of wildlife. That few understand the nature of the trade-offs that a general application of this philosophy would demand is immaterial. Endangered species protection is in, and neither the responsible federal nor state agencies can ignore the strength of the public commitment to the protection of endangered wildlife.

The second major point that we want to make is related to the foregoing. When the Endangered Species Act was being considered, there was real concern in the Congress that zeal might tend to dominate common sense, with the result being a wholesale classification of species as endangered on rather specious evidence. The record of the hearings makes it quite clear that there was apprehension over the inability of the scientific world to provide any but general criteria for use by the Secretary in establishing the requisite lists. Consequently, the Act requires that the Secretary should consult widely and further that his determinations be based on the best scientific and commercial data available. Nevertheless, the burden of proof in the listing process seems to have shifted to those not favoring listing. An example is found in the Fish and Wildlife Service's Position Paper on the grizzly bear which states that "the grizzly bear

must be regarded as 'threatened' in the Yellowstone Ecosystem until there is positive proof that it is not." The Endangered Species Act must not be used lightly. According to a Senate co-sponsor of the 1973 legislation, the listing process is "a delicate and highly specialized task." 119 Cong. Rec. S14515 (July 24, 1973) (remarks of Mr. Tunney) Above all, the high purposes of the Act should not be devalued by application to routine wildlife management situations.

The coverage of the Act is immense. Thousands of species are potential nominees for listing. The vulnerability of the individual species must be the ultimate ground for listing. If the purposes of the Act are to be achieved, that determination must be made on the most objective basis. There is reasonable ground for the conclusion that a case has never been made for listings such as those involving the American alligator, the grizzly bear, and the eastern timber wolf. As much as anything, the amendment to the Lacey Act to cover reptiles et al., giving the federal government a means of stopping illicit commerce in alligator hides taken in violation of state law, was the factor that reduced poaching and decimation of alligators. Grizzly bear populations in Montana, Wyoming and Idaho have been fairly stable for several decades. The few bears remaining in Idaho have had total protection for years. Wyoming placed a moratorium on hunting in 1975 and its bear population fluctuations may have been a mani-

festation of conditions in Yellowstone National Park. In Montana, the number of animals taken by hunting tended only to stabilize the population. Ultimately, the decision was made by the Interior Department to classify this population as threatened rather than endangered with the reluctant acquiescence of the Montana Fish and Game Department. The object was to prevent further shrinkage of grizzly range by expansion of timber cutting and recreational usage in the national forests where it resides.

The same general story exists for the timber wolf, which remains as a viable population in the lower-forty eight states only in Minnesota. Prior to enactment of the Endangered Species Act, state regulations in Minnesota allowed the wolf to be taken as a predator, a reflection of the continuing depredation of wolves on farm livestock in the agricultural areas bordering the wolf sanctuary in the Superior National Forest of Northern Minnesota. Under pressure from non-farming interests, the state legislature changed the status of the wolf to that of a game animal, thus allowing the Department of Natural Resources to establish regulations for its protection. During all of this, the number of timber wolves has remained steady or increased. The issue is whether or not a population of this size, given the condition of the habitat, can be judged endangered. The Interior Department, ignoring the recommendation of its field personnel and the state, decided

to retain the species on the endangered list. Now, it is about to change that classification to threatened. To many observers, the original actions of the Department in each instance appeared to be decision-making based on public pressure rather than the best scientific evidence available as required by law. Indeed, in the course of favorably reporting a bill last year to compensate persons suffering losses from timber wolf depredations, the House Committee on Merchant Marine and Fisheries stated that of all endangered predators, the eastern timber wolf is "one of the most destructive because of its numbers and proximity to developed areas." H. Rep. No. 94-1511, 5 (1976).

Another area involving the listing process which, in our view, requires clarification by the Fish and Wildlife Service involves an administrative understanding of what constitutes an adequate existing regulatory mechanism. Section 4(a) directs that, in determining whether a species should be listed as endangered or threatened, the Secretary shall consider "the inadequacy of existing regulatory mechanisms." In the case of the 1975 listing of the grizzly bear as a threatened species, the states of Idaho, Montana and Wyoming where the grizzly bear is found in the lower 48 states had expended considerable effort to conserve the populations. Both Wyoming and Montana had established comprehensive management plans, and, as previously indicated, the species was protected in Idaho. Yet in its final determination, the

Service declared that existing regulatory mechanisms were inadequate because of "gaps" in the scientific information relating to grizzly bears which "greatly hinders the present management program." 40 Fed. Reg. 31734 (July 28, 1975). Small wonder that state wildlife agencies may be distressed when years of effort to conserve a species are so cavalierly dismissed. In fact, we suspect that a significant factor in listing of the grizzly bear was a desire to control potential development activities which could have adverse effects on this wilderness species. We certainly have no quarrel with the desire to limit such human intrusion; indeed, such limitations are essential. But the inference to be drawn is that since the state is not able, under the Supremacy Clause, to regulate authorized federal land managing activities, the Endangered Species Act was invoked to restrain federal agency activity. We believe it is inappropriate to declare a state regulatory mechanism inadequate because the state cannot dictate federal practices. A similar situation is brewing with respect to wild horses and burros which, under federal protection, are expanding in numbers to the detriment of certain wildlife populations with which they share their range.

We recognize that listing decisions are not easy. The statutory guidelines are at best imprecise. Congressional imprecision means broader administrative discretion and this, in turn, leads to pressures to influence the exercise of that discretion. There is no way

in which the Fish and Wildlife Service can generate the kind of detailed data a thoroughly researched decision would require for all the species that someone, for one motive or another, might wish to see afforded the protection of the Act. The only constructive alternative that we can see to the continued bickering over this question is for the Service to undertake a series of scientific symposia designed to elicit the most acceptable criteria for endangerment, current information on the status of particular species, potential conservation actions needed, all related to the taxonomic orders of both plants and animals. This series of presentations and discussions would go far toward establishing a baseline of information, would identify the information voids and, finally, would enable the responsible officials to concentrate on urgent problems rather than spreading their efforts over the whole spectrum of imagined catastrophes.

In previous testimony, we have commented on the problems faced by the responsible federal agencies in gearing up to handle the challenging task of launching a large program with little lead time and under great public pressure. While there are still problems of perfecting the administrative system needed to carry out its duties, the Fish and Wildlife Service has made substantial progress. In retrospect, it has been an arduous and sometimes thankless job that

the Congress handed Director Greenwalt and his associates in the Service. Confronted by public demands that a number of species be listed, yet tied to an explicit and time consuming procedure, systematizing their activities was difficult to say the least. Refinements are needed but Director Greenwalt and Assistant Director Schreiner are to be commended for their efforts.

Nevertheless, were we to single out the major shortcoming of the Act, it would relate to the failure to involve state wildlife agencies more fully in the task of attempting to bring endangered wildlife back from the brink of extinction. When the Act was being considered by Congress, it was widely recognized that the nature of the task was such that close federal-state cooperation would be required. The federal government was in no position to undertake the efforts at the local level needed to perpetuate species deemed to be threatened or endangered. In consequence, Congress directed in section 6(a) that the Secretary cooperate with the states to the maximum extent practicable and also sought to encourage state participation through financial assistance as a key to success. The Conference Report on S. 1983 states:

It should be noted that the successful development of an endangered species program will ultimately depend upon a good working arrangement between the federal agencies, which have broad policy perspective

and authority, and the state agencies, which have the physical facilities and the personnel to see that state and federal endangered species policies are properly executed. The grant program authorized by this legislation is essential to an adequate program. Since the federal government is directing new, innovative and perhaps expensive programs, it seems only fair that it should also bear a significant portion of their costs. The conferees wish to make it clear that the grant authority must be exercised if the high purposes of this legislation are to be met. H. Rep. No. 93-740, 26 (1973).

Mr. Chairman, Congress plainly intended that unusual efforts be made to insure that state wildlife agencies be made partners in a genuine cooperative effort. This effort has been slow in coming, and three factors can be identified. First, for at least two years after enactment, uncertainty existed over what was expected of the states. Delays occurred at the federal level in connection with the drafting of cooperative agreements. These drafting problems, and thus this source of delay, are now behind us.

A second problem has been that the previous Administration failed to back up its promises of cooperation with appropriations for grant programs. Until this year, the Administration had consistently refused to request funds for grant programs. None were appropriated until Fiscal Year 1976, and then on the initiative of the Congress. We urge this Committee to reaffirm the declaration made by the Conference Committee in 1973 that "the grant authority must be exercised

if the high purposes of this legislation are to be met."

The final problem which has posed a bar to genuine federal-state effort is found in section 6(c) of the Act. The scheme of the Act is to preempt certain traditional state authorities over resident endangered and threatened species until such time as the Secretary of the Interior determines that the state has an "adequate and active" program for endangered and threatened species. Such determinations are made when a state submits a proposed program for review by the Secretary and five criteria which must be satisfied are set forth in section 6(c). To date, eighteen states have qualified under section 6(c) and have entered into cooperative agreements.^{1/} The programs of four other states have been found by the Secretary to qualify under section 6(c) as "adequate and active" but these states have not yet entered into cooperative agreements.^{2/} The remaining twenty-eight states and the Commonwealth of Puerto Rico do not qualify under section 6(c) for a variety of reasons. Hawaii, for example, does not appear to qualify because the state agency has authority to permit the taking of endangered species for educational purposes whereas federal

^{1/} Arkansas, California, Colorado, Delaware, Florida, Maine, Maryland, Michigan, Missouri, New Jersey, New Mexico, New York, North Carolina, South Carolina, South Dakota, Virginia, Washington and Wisconsin.

^{2/} Alaska, Georgia, Nebraska and Pennsylvania.

law declares that taking be permitted only for scientific purposes or to enhance the propagation or survival of the affected species. To this extent, the Hawaiian law is not as restrictive as federal law and thus the state's program does not appear to meet the criterion of section 6(c)(1). Montana may have a similar problem in that the Montana Code appears to permit the taking of endangered species for zoological or educational purposes or where necessary to alleviate damage to property. This provision would appear to disqualify Montana since, under regulations issued by the Secretary of the Interior, a species such as the grizzly bear, which constitutes a demonstrable but non-immediate threat to human safety or which is committing significant depredations to lawfully present livestock, may be taken but only if it can be demonstrated that it is not reasonably possible to eliminate such threat or depredation by live capturing and releasing unharmed in a remote area. Furthermore, if the demonstration can be satisfactorily made, the taking must be done in a humane manner and only by authorized federal or state employees. 40 Federal Register 44427 (September 16, 1975).

Tennessee has been advised that it does not qualify because the laws of Tennessee appear to authorize the taking of endangered species for property depredation. A question has also been raised by the Fish

and Wildlife Service as to whether Tennessee complies with section 6(c)(4), relating to habitat acquisition, inasmuch as the Tennessee Wildlife Resources Agency has authority to acquire a fee simple interest in land and aquatic habitat but has not made clear whether it possesses authority to acquire an estate in land which is less than fee simple.^{3/}

Some of the foregoing reasons for disqualification would seem to be simple bureaucratic pettifoggery. Others are of more substance. Our major concern, however, relates to the situation where states are disqualified from cooperative agreements by virtue of certain requirements of section 6(c) that a state have authority over and acceptable conservation programs for all resident species of fish or wildlife in the state which the Secretary deems to be endangered or threatened. This means that if a state agency does not possess authority to conserve lower forms such as invertebrates like insects, earthworms or the protozoa listed by the Secretary, then all bets are off. We view this "all or nothing" approach as an outstanding example of the elevation of form over substance. Even if a state agency were empowered to conserve these lower forms, as a practical matter

^{3/} Remarkably, the Fish and Wildlife Service construes the language of section 6(c)(4) which requires that the state agency have authority for "acquisition of land or aquatic habitat or interests therein" to mean that authority must exist to acquire both fee simple and less than fee simple.

there is usually little that can be accomplished. Many of the states which have not attempted to qualify under section 6(c) have foundered on this requirement. And, indeed, states that have already entered into cooperative agreements may find their programs disqualified, should the Secretary determine that some obscure invertebrate is endangered or threatened within the state. This planet is called home by possibly four million animal species and subspecies and it is futile to disqualify state programs for endangered birds, mammals, fishes, reptiles and amphibia simply because authority may be lacking with respect to lower forms of animal life. Unless this provision is amended, many state programs may never qualify.

In previous testimony before the predecessor of this Committee, we have urged an amendment to resolve this problem. Upon reviewing the impact of the exact wording of that proposed amendment upon other sections of the Act, it appeared that there should be some revision of our original language. We have revised that language and have an amendment available. We would be glad to work with the Committee, if desired, on this matter.

Finally, we wish to address one other matter that is an issue of prime concern not only among those with a direct official or personal interest in wildlife conservation, but many others who view the rigid administration of the Act as a threat to the American ideal

of growth and progress. We refer, of course, to the requirement under section 7 that no federal agency espouse any program that would adversely affect the survival of a species classified as endangered or threatened. We will not burden the record with the details of the several situations that have raised this specter. They are well known. What is not recognized or accepted is that it is this coverage by the Act that strikes at the root causes of endangerment.

As we have pointed out frequently, it is not hunting, or even vandalistic shooting that lies at the heart of the problem of endangered species. It is, rather, the destruction of habitat. It is the drainage of a bog that is home to the last of a species of bird, or snake, or wildflower, to make way for a federally subsidized highway. It is flooding the habitat of an indigenous plant or animal by a federally built dam. In many ways, section 7 is the very heart of the Endangered Species Act. If the grizzly bear goes the way of the dodo bird, it will be because we have invaded its territory with roads and other manifestations of civilization, driving the grizzly bear from its primeval haunts.

The Endangered Species Act has been subjected to unjustified criticism because of a few projects that have claimed the public's attention, projects that would indeed have had adverse effects upon certain species. The case has been adequately made that the Service

has not been autocratic in its handling of a wide range of problems, to our knowledge not reported to the press. Out of all the potential conflicts between wildlife interests and those of development, most of the problems have been resolved through the process of negotiation. We urge that the critical habitat protection afforded by section 7 be preserved intact at least until there is a more conclusive record that that provision cannot be reconciled with legitimate development programs.

This concludes our prepared testimony. We believe the detailed testimony from representatives of several of the government members of the Association will amplify several of the points we have made, and additionally bring several other issues to your attention. Thank you for this opportunity to be heard.

July 19, 1977

STATEMENT OF JAMES E. KEELER
Chief, Wildlife Research
Game and Fish Division
Alabama Department of Conservation and Natural Resources

Before Senate Subcommittee on Resource Protection of Committee
on Environment and Public Works

I am James E. Keeler, Chief of Wildlife Research of the Game and Fish Division of the Alabama Department of Conservation and Natural Resources. It is indeed a pleasure to address this subcommittee and present Alabama's views on the functioning and administration of the Endangered Species Act of 1973, as well as the views from some other Southeastern States.

I commend the entire Congressional Body for its foresight in passing the Endangered Species Act of 1973. During the early years of modern game management, state and governmental agencies showed only mild concern for the various life forms that were not considered game species. Most of the earlier laws and regulations were concerned with wildlife management that were geared to enhance the various game birds and mammals and their required habitats. Various wildlife management practices implemented did have a positive effect on certain non-game species and these practices left many wildlife and fisheries administrators with the thought that adequate work was being carried out on non-game species.

About this time, the general public was rapidly becoming conscious of the various aspects of nature. "Nature" became a thing to behold, and a thing to identify with. Everyone, and especially the youth, were looking for ways to "get back to Nature". More and more natural history articles appeared in national magazines, in newspapers and nature programs became the vogue on television. Environment, habitat, ecology and ecosystems became household words. Most states and other governmental organizations began gearing up to provide information on non-game species to satisfy public demand. Research projects on non-game

species began to appear.

Paralleling the public's new respect for natural history subjects came the concern that all might not be right with the wild creatures. New organizations began cropping up. Protective Societies, Conservation Groups, and Environmental Organizations made their appearance on the State and National level. Water pollution, air pollution, pesticides, habitat destruction and many other adverse man-caused factors were identified as being destructive to wildlife and demands for legislation to correct the problems were made.

Then, along came the Endangered Species Act of 1969. This Act showed considerable promise that species on the verge of extinction could be saved, at least temporarily, and, hopefully, over very long periods of time, by providing them with protection and a place to live that was conducive to their well-being. Four years later the Endangered Species Act of 1973 replaced that of 1969. To accomplish the above, the new Act was, by necessity, armed with strong teeth.

In order for States to comply with the Act, it became necessary to thoroughly understand the various sections. Certain sections were subjected to legal interpretations in order to provide a clear meaning as to what was the Congressional intent. A meeting was held in Atlanta in 1974 and lawyers from the U. S. Fish and Wildlife Service attempted to explain to representatives of the Southeastern States their version of the more important sections of the Act. Most of the time was allocated to explaining as best they could Sections 4 and 6. Section 4 deals with the Determination of Endangered and Threatened Species while Section 6 deals with Cooperation with the States. Results from the Atlanta meeting were partially successful however, some of the questions posed by various State representatives could not be legally answered.

It was obvious from the Atlanta meeting that most States were not ready to deal with Endangered Species in the manner as provided for in the Act. Lack of

funds and personnel were to play a big part in the slow start from the state level. The problem was intensely magnified on the federal level. With the Secretary of the Department of the Interior being the Chief Administrator of the Act, most of the problems, rules and regulations rested on his shoulders. An Endangered Species Office was soon staffed and placed in operation. Memos flew back and forth from the Endangered Species Office to the States in an attempt to clarify the various procedures necessary to enter into a cooperative agreement.

The first major concern was to notify State Game and Fish Agencies that legislation must be passed to provide for the protection of all endangered species within their State. Most state laws protected only certain fishes, birds and mammals. Reptiles and amphibians and other orders of the animal kingdom were mainly unprotected. Some states had no problem in passing such legislation, however, others had difficulty. As a case in point, Alabama does not at this time have a law that protects all endangered species. For the past three years bills to protect endangered species have been introduced but all have failed in committee. During the last session, when an endangered species bill was discussed in committee the question was raised, "Is this another Red-hills Salamander Bill?" The reply was "yes". The meeting was adjourned. This problem stemmed from a telephone conversation from the Endangered Species Office to a Mobile reporter who wrote his own interpretation which implied that 60,000 acres of forest habitat was involved and would be taken out of production to protect the salamander which is considered threatened. Before the reporter could be corrected the damage was done and large landowners in the designated area thought they would have to give up their land to the Red-hills Salamander. Even though the Game and Fish Division and the State Forestry Commission held two meetings with the landowners involved to clarify the situation, to this day suspicion and doubt remain when the words "endangered species" are discussed

and it has filtered into the state legislative body.

In order for a national endangered species program to be successful, all parties involved must make a completely honest effort to work closely with one another. In many instances this closeness has not been in effect.

I would like, at this time, to discuss some of the problems various states have expressed with administrative problems as they exist between themselves and the Endangered Species Office. Only this month the State of Missouri conducted a telephone survey of the Southeastern States on suggested modifications for the Endangered Species Act. From the comments received it was apparent that not all of the suggestions were aimed at the law itself. Some comments were directed at the administrative procedures of the Endangered Species Office. Earlier this year, the International Association of Fish and Wildlife Agencies also conducted a poll on endangered species concerns. Administrative-wise, it appears that some issues of major concern are bureaucracy and lack of organization within the Endangered Species Office and the lack of cooperation and coordination between state and federal agencies.

What causes considerable concern in Alabama and the Southeast is the haphazard way some species are considered as candidates for the endangered list. Two examples are clear in my mind. The alligator is a prime example of what can happen when emotionalism replaces information. It is now fairly well agreed by everyone concerned that the alligator population decline never reached a low enough level to merit placing it on the endangered list. Regulatory action could have slowed or stopped the overharvest of these reptiles if given a chance. Hasty action and federal insistence allowed it to be placed on the endangered list. Recently the alligator was removed from the endangered list in Louisiana and Florida and listed as threatened. According to the law, it is still endangered in Alabama. Two letters from the Governor requesting that it be listed as threatened finally received one reply. The answer implied that insufficient data were available to declassify it. To our knowledge, no attempt

to collect information on the alligator population in Alabama by the federal government has ever been carried out. However, two years were spent by an Alabama Game and Fish Biologist collecting population information on this species. In recent years two attacks by alligators on people on coastal parks and their taking of numerous pet dogs did not endear this animal in the hearts of Alabama residents.

The other example involves the nomination of cave scuds to the endangered species list. A letter was mailed from the Endangered Species Office to the Governor of Alabama asking whether or not he considered these species as rare enough to be considered candidates for the endangered list. No information concerning their population status was enclosed. It was referred to me for recommendations. After calling Auburn University, I learned that cave scuds were sow-bug like creatures, however, no one in this institution could supply information about their status. The Governor's reply suggested that we had no information therefore could not make a determination, but to please send all information that the Endangered Species Office had on them. About a month later the Governor received a reply which consisted of a listing of the various species, their scientific names and the name and location of the caves in the Southeast in which they were found. Needless to say, Alabama officially went on record as opposing cave scuds as candidates for the endangered species list. In my opinion, much more thought, planning and information gathering should be implemented before a species should even be considered.

Regarding the act itself, I feel that certain amendments should be made. It is a complicated law, containing 17 sections. It is only natural that a law of this magnitude will show discrepancies once implemented for a few years. From the surveys conducted to suggest modifications of the Act, I will present various viewpoints arising from the state level.

1. The majority of states polled request that the word "all" in Section 6, (c), (2), be eliminated. This would enable more states, where authority

is divided, to participate in the endangered species program.

2. Request that the federal cost shares be raised from 66 2/3 percent to 75 percent. (Section 6, (d), (2), (i). This would bring the federal share to the level of other cooperative programs such as the Dingle-Johnson and Pittman-Robertson Acts and would make it easier for the states to raise matching funds. *
3. Many states are dissatisfied with the "look alike" section. (Section 4, (3), (e), (A), and request that this be modified, in effect so that it would be rarely used. (It may be more of an administrative problem than in the law itself).
4. Comments varied considerably concerning the list of species.
 - a. More recognition should be given to states' opinions since they should, in most cases, be better informed as to an animal's status than someone in the Washington Office.
 - b. Delisting (by states) should be made easier.
 - c. Where do you draw the line on pest species?
 - d. Priorities should be changed to recognize state listed species.
 - e. Hybrid animals should not be considered as candidates for threatened or endangered status.
5. Suggest no change in Section 7. The Southeastern States feel that this section on Interagency Cooperation be left intact.
6. States which have a cooperative agreement with the U. S. Fish and Wildlife Service and have an active non-game program should be eligible for participation without specific new state legislation which complies with federal requirements.

The Southeastern States are generally in agreement that the Endangered Species Act of 1973 is a good strong Act and it has been mentioned to me a number of times that we should be cautious about recommending amendments that would weaken the Act. It is not our intent to suggest anything to weaken it

but to improve it to the extent that states may have more input by being legally allowed to cooperate with the Endangered Species Office on an equitable basis and by eliminating reams of unnecessary red tape. Without state input, the Endangered Species Act will fail.

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Presented by
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Statement of the
 MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Before the Subcommittee on Resource Protection
 Senate Committee on Environment and Public Works

July 19, 1977

States implementation of Endangered Species Act of 1973, P.L. 93-205

Mr. Chairman, I am Dr. Sylvia M. Taylor, Assistant Coordinator for Michigan's Endangered and Threatened Species Program, Michigan Department of Natural Resources.

I wish to express our state's appreciation for the invaluable cooperation and assistance Michigan's program has received from the United States Congress and federal agencies, especially the U.S. Department of the Interior and the U.S. Department of Agriculture.

The Endangered Species Act of 1973 has been well received in Michigan. In addition, Michigan Public Act 203, 1974, provides for the conservation, management, enhancement, and protection of fish, plant life, and wildlife species endangered or threatened with extinction, for enforcement authority and for penalties. The state list of "endangered" species are those species listed by the Secretary of Interior as endangered and resident in any part of their life cycle in Michigan. The list also includes those indigenous species which the State of Michigan feels should be included on the National list of endangered species because they are on the verge of extinction.

Act 203 is being implemented through the Endangered and Threatened Species Program of the Bureau of Renewable Resource Management, Michigan Department of Natural Resources. The program has the following stated objectives:

1. Provide added protection under State law for species listed as endangered or threatened by the Secretary of the Interior.
2. Develop conservation management programs for Michigan species listed as endangered by the Secretary.
3. Establish state lists of endangered and threatened species through an evaluation of the best current information.
4. Implement research and survey programs on certain species to establish the current status of Michigan populations and/or limiting factors in their range and abundance.
5. Implement management programs, including land acquisition, that will make the best use of available funds in ensuring the survival and enhancement of all endangered and threatened species.

In Michigan at the present time, 64 species of animals and 17 species of plants are officially listed as endangered or threatened under Michigan Public Act 203. One hundred ninety-six additional plant species are under review for "threatened" status. The Michigan list will be amended as necessary on a biennial basis by the Michigan Natural Resources Commission.

The Michigan Endangered and Threatened Species Program has a high level of acceptance and support from other agencies within State government and also from the general public. The public has embraced the program and deserves credit for initiating and maintaining it. Twenty-five eminent scientists have given freely of their time by serving on technical committees. They have been responsible for developing the endangered and threatened species list, and they continue to advise the Michigan Department of Natural Resources about the biology of the species. Also, an advisory committee consisting of interested and informed citizens ensures public input into the listing of species. Many people have contributed money to Michigan's Living Resources Fund which is available for management of endangered and threatened species. Private groups have also raised money to buy endangered species habitat lands. Interest in the program is exemplified by the fact that citizens frequently report sightings of endangered or threatened species. Knowledgeable amateurs are monitoring the status of particular species.

As Michigan's program now stands, it is most heavily involved in the following four activities:

1. Coordination of research and survey work.
2. Field management for species recovery. The most extensive effort is for the Kirtland's warbler, but work continues on the Eastern timber wolf, bald eagle, osprey, and prairie chicken.
3. Environmental review of projects which may affect endangered or threatened species.
4. Public involvement and education

The most important single contribution to our program is the endangered species cooperative agreement between the United States Department of Interior's Fish and Wildlife Service and the Michigan Department of Natural Resources. The 1977 approved federal share for projects under this agreement is \$155,000. These funds support critical habitat acquisition, research and survey work, and management programs for Kirtland's warbler. These funds also support research and survey work involving avian species, mammals and cold-blooded vertebrates and invertebrates.

We were greatly encouraged this year by a nine percent increase in the number of Kirtland's warblers nesting in Michigan. We believe federal funding is providing the vital margin needed to ensure survival and recovery of this endangered species. The plight of the Kirtland's warbler and the fact that it nests only in Michigan has made such an impression on the people of Michigan that the Kirtland's warbler has repeatedly been suggested for designation as Michigan's state bird. The people of Michigan, together with many people throughout the United States and foreign countries, will indeed be grateful for the preservation of this species.

One of the most satisfactory aspects of Michigan's Endangered and Threatened Species Program is its success in resolving conflicts between endangered species and competing land users. The Michigan National Guard has been cooperative and has adjusted its program on its firing range in favor of nesting Kirtland's warblers. The Michigan Department of State Highways and Transportation has developed alternate highway alignments to avoid threatened plants along the north shore of Lake Michigan. The U.S. Army Corps of Engineers avoids beds of American lotus (listed as "endangered" on Michigan's list) in their dredging operations. These and other agencies are looking ahead to be sure endangered species conflicts are avoided in the future. They routinely coordinate plans with the endangered species office.

Michigan has enjoyed excellent cooperation and help with its program from the U.S. Fish and Wildlife Service and the U.S. Forest Service. The participation of these agencies in our program is welcome. The personal help of many dedicated individuals in these organizations is appreciated and we look forward to good relations with their staffs in the future.

The most serious deficiency in the Michigan program is the lack of adequate biological knowledge of endangered and threatened species in our state. Federal funding is assisting in our effort to overcome this deficiency for animal species, but not for plant species. Michigan has no State Museum of Natural History. The Michigan Biological Survey was abandoned in 1921 when the Conservation Department (now the Department of Natural Resources) was founded. Consequently, most work on scarce species in Michigan has been conducted by universities and by dedicated private individuals. Although Michigan Department of Natural Resources' field biologists have studied scarce non-game animal species for many years, such research was accomplished on a limited basis because of lack of funds and manpower. In recent years some of our state universities have diverted much of their scientific effort away from field biological research into the exciting and important new advances in cellular and molecular biology. All these factors have left us embarrassingly ignorant of the actual occurrence and of the limiting factors associated with many of Michigan's endangered and threatened species. An expanded effort, therefore, is needed for research and survey work.

We must have knowledge based on facts to make adequate management plans to ensure the survival of endangered and threatened species and to help others avoid adverse impacts to them. The Federal Government can further aid Michigan in this effort and with other aspects of our program in four major ways:

1. By continuing to fund endangered and threatened species projects approved under the cooperative agreement between the United States Fish and Wildlife Service and the Michigan Department of Natural Resources at levels which will accomplish the stated objectives of the projects.
2. By funding projects for plants. If it is necessary to clarify Section 6c of the Endangered Species Act of 1973 to allow such funding, this should be done. Implementation of Michigan's Endangered Species Act has advanced to the stage where part of the State's endangered or threatened flora is officially listed.

The bulk of the 196 species still under review for "threatened" status will probably be officially listed by January, 1979. It is unthinkable that the Federal Government would choose to encourage protection of Michigan's animal species but not of Michigan's plant species.

3. By increasing the Federal contribution to State endangered and threatened species programs from two parts Federal, one part State; to three parts Federal, one part State. The recommended funding ratio will provide a more favorable opportunity for obtaining matching monies from our State Legislature.
4. By entering into cooperative agreements with more states. Many of the species we seek to protect occur in adjacent states. We have the ability to work with the State of Wisconsin on jointly-funded programs for species survival because Wisconsin also has an endangered species cooperative agreement with the Department of Interior. We wish this situation also existed for the states of Ohio and Indiana.

Michigan's Endangered and Threatened Species Program has had a successful beginning. For the sake of all species in our state as well as for the enrichment which they give to our lives, we are determined that Michigan will never again lose any species due to the foolishness and ignorance of mankind.

Submitted with this testimony are the following exhibits:

1. A copy of the booklet, Michigan's Endangered and Threatened Species Program.
2. A reprint from The Michigan Botanist which includes a report by the Michigan Technical Advisory Committee for Plants and a commentary on endangered and threatened plants in Michigan by Professor John H. Beaman, Michigan State University.
3. An editorial from The Detroit Free Press regarding relations between the Michigan National Guard and the Michigan Department of Natural Resources.



Michigan's Endangered and Threatened Species Program



DEPARTMENT OF
NATURAL RESOURCES



-INTRODUCTION-

When this nation was born a scant 200 years ago, the land literally teemed with wildlife, plant and animal, and for four score years thereafter there continued to be abundant stocks of native flora and fauna. This abundance was one of the strengths of a young and growing country. It was inevitable, of course, that as man settled the land he would use or displace or redistribute many of the plants and animals, but the appalling decimation, total in some cases, of animal life that occurred in the latter half of the 19th century was never foreseen--nor the casual lack of self-restraint with which man perpetrated it. One can only imagine the outrage with which the founding fathers, particularly Washington and Jefferson who revered the natural resources of the United States, would have viewed this destruction. The vivid examples all of us know about provide documentation for what generally happened. The plains buffalo numbered in the millions in 1865 and only a few hundred in 1890--almost extinct. Here in Michigan the passenger pigeon flocks darkened the skies in 1870, and the last one, the very last one, died in a Cincinnati zoo in 1914, possibly the most dramatic and tragic of all species exterminations. And there are others, many others.

Since the advent of the 20th century, there has been a steadily growing concern about the welfare of the drastically reduced stocks of native animal and plant life still surviving from the excesses of the 19th century. Many organizations have been formed with objectives that, when carried out, directly or indirectly contribute to the protection and enhancement of plant and animal species. Examples are the Audubon Society, the Wildlife Federation and all its associated sportsmens clubs, Trout Unlimited, etc. The federal government and each state government have all developed substantial and far reaching programs to conserve our flora and fauna for the benefit of this and future generations. Despite these efforts, however, many species either continue to decline or do not increase from alarmingly low levels. Some are the most spectacular and beautiful of our wildlife such as the peregrine falcon, the wolf, the cheetah, the American lotus, and there are reasons why they now face particularly difficult survival problems. They may have always been scarce, or have low reproductive rates, or are highly intolerant in habitat selection, and, most importantly, all are especially sensitive to man's presence, with all its ramifications. They need help. Recognizing this, several pieces of specific legislation have been passed in the last several years by the federal government designed to assist the survival of these species, the most recent being the Endangered Species Act of 1973. Michigan among several other states has followed suit, and is developing a program which is described here.

-GENERAL DESCRIPTION OF PROGRAM-

Michigan's modern endangered and threatened species management efforts began in the 1950's with the dedication of habitat for the Kirtland's Warbler and later for the Prairie Chicken. Piecemeal legislation

offered the only protection for important non-game animals until the passage of P.A. 210. In 1970, Public Act No. 210 provided protection to species found on the U.S. endangered species list and to certain other animals such as the cougar, timber wolf, alligator, caiman and crocodile. The law did not provide for management other than mere protection. Michigan's comprehensive endangered species law, Act No. 203, Public Acts of 1974 (Appendix A) became effective September 1, 1974 superseding Act 210. It charges the Department of Natural Resources with the responsibility to carry out scientific investigations for the protection and enhancement of endangered and threatened species of both animals and plants. This broad new state authority provides protection for endangered and threatened species on both federal and state lists, and authorizes a full range of conservation management programs for these plants and animals including necessary land acquisition.

The Department appointed an endangered species coordinating committee to report directly to the Bureau Chief for Resources.

Special technical committees consisting of outside scientific experts were appointed to advise the Department in six major areas, i.e., fishes, amphibians and reptiles, invertebrates, birds, mammals and plants (Appendix B). The initial task of the scientific advisory committees was to screen nominations (see Appendix D for definitions) for possible inclusion in the state lists of endangered and threatened species. The species recommended for listing will have a status report and management recommendations prepared by the advisory committees for review and possible implementation by the Department.

A citizens advisory committee was also appointed, including representatives with a broad range of interests in endangered species ranging from the Michigan Pet Store Owners Association to the Michigan Audubon Society (Appendix C). This committee will provide outside review of Department policies relating to management and protection of endangered plants and animals and has critiqued the work of the scientific advisory committees.

-PROGRAM OBJECTIVES-

The following objectives are listed in order of expected implementation:

1. Provide added protection under state law for species listed as endangered or threatened by Secretary of the Interior.
2. Develop conservation management programs for species listed as endangered by the Secretary that are resident to Michigan.
3. Establish state lists of endangered and threatened species through an evaluation of best current information.
4. Implement research and survey programs on certain species to establish the current status of Michigan populations and/or limiting factors in their range and abundance.

5. Implement management programs, including land acquisition, that will make the best use of available funds in ensuring the survival and enhancement of all endangered and threatened species.

Initially Michigan's Endangered Species Program will provide added legal protection to those species listed by the Secretary of the Interior as endangered under authority of the Endangered Species Act of 1973 (P.L. 93-205). Michigan officials can now use state law to assist federal authorities in regulating the possession, trade, transportation and taking of either domestic or foreign species listed as endangered.

At the state level, the first efforts have concentrated on developing conservation management programs for resident species like the Kirtland's Warbler which have been declared federally to be endangered. Simultaneously, comprehensive studies have been initiated on resident species of plants and animals to determine which ones should be nominated for national status as endangered or threatened, and/or which should be placed on similar state lists. Listing at either the state or federal level will provide added protection for a species, and perhaps more importantly, prompt development of management plans to insure its survival.

John Byelich of the Wildlife Division has been named leader of the national recovery team for the Kirtland's Warbler by the Director of the U.S. Fish and Wildlife Service. Nels Johnson, Jr., Region II Wildlife Supervisor, also serves on this select recovery team charged with developing plans to preserve the Kirtland's Warbler.

Ralph Bailey, Region I Wildlife Supervisor, was named leader of the national recovery team for the Eastern Timber Wolf.

The first state lists on endangered species were presented to the Natural Resources Commission in February, 1976 and gained tentative approval for the holding of public hearings (see Appendix E). Once the lists of species is fully approved through the administrative process, the job of identifying the critical habitat for these species will begin, first on state-owned lands and other areas under public ownership, and then on private lands.

Ultimately management and land acquisition plans and special regulations will be developed for each endangered and threatened species, for implementation as funds become available from private, state and federal sources.

-LIMITATIONS ON SCOPE OF PROGRAM-

The entire State of Michigan, including its 24 million acres of Great Lakes waters, is included within the scope of Michigan's endangered species program. Initial management efforts for individual species will concentrate on public lands. Once lands critical to the survival of

endangered and threatened species are precisely identified, all state laws and regulations controlling water pollution, fill and dredge, coastal zone management, natural rivers, highway construction and land use planning can be used to a varying degree on both public and private lands to protect the habitats of these species.

The only statutory limitation on the scope of the endangered species program is that it does not include species of the order insecta determined to constitute a pest by either the Michigan Natural Resources Commission or the Secretary of the Interior. As a practical matter, both lower forms of plants (i.e., algae, fungi, mosses and liverworts) and very simple microscopic forms of animals will not be considered in the initial program.

The success of Michigan's endangered and threatened species program will largely depend on how effective the Department is in the identification and protection of habitat required for the survival of these species. Existing Department activities, including natural rivers and Great Lakes shoreline programs, can be utilized to preserve these important areas. Many opportunities and options for preserving these areas are available under existing state law. The challenge will be to locate and inventory the critical land and water areas.

7/11/74

Act 203

**STATE OF MICHIGAN
77TH LEGISLATURE
REGULAR SESSION OF 1974**

Introduced by Reps. Goemaere and Thomas J. Anderson
Rep. Mahalak named as co-sponsor

ENROLLED HOUSE BILL No. 5854

AN ACT to provide for the conservation, management, enhancement and protection of fish, plant life, and wildlife species endangered or threatened with extinction; to provide for enforcement authority; and to prescribe penalties.

The People of the State of Michigan enact:

Sec. 1. This act shall be known and may be cited as the "endangered species act of 1974".

Sec. 2. As used in this act:

- (a) "Commission" means the commission of natural resources.
- (b) "Department" means the department of natural resources.
- (c) "Director" means the director of the department of natural resources.
- (d) "Endangered species" means any species of fish, plant life, or wildlife which is in danger of extinction throughout all or a significant part of its range other than a species of insecta determined by the commission or the secretary of the United States department of the interior to constitute a pest whose protection under this act would present an overwhelming and overriding risk to man.
- (e) "Fish or wildlife" means any member of the animal kingdom, including any mammal, fish, amphibian, mollusk, crustacean, arthropod, or other invertebrate, and includes any part, product, egg, or offspring, or the dead body or parts thereof. Fish or wildlife includes migratory birds, nonmigratory birds, or endangered birds for which protection is afforded by treaty or other international agreement.
- (f) "Import" means to bring into, or introduce into, or attempt to bring into, or introduce into, any place subject to the jurisdiction of this state.
- (g) "Person" means an individual, corporation, partnership, trust, association, or any other private entity, or any officer, agent, department, or instrumentality of the federal government, of any state or political subdivision thereof, or of any foreign government.
- (h) "Plant or plant life" means any member of the plant kingdom, including seeds, roots, and other parts thereof.
- (i) "Species" includes any subspecies of fish, plant life, or wildlife and any other group of fish, plants, or wildlife of the same species or smaller taxa in common spatial arrangement that interbreed or cross-pollinate when mature.
- (j) "Take" means, in reference to fish and wildlife, to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.
- (k) "Take" means, in reference to plants, to collect, pick, cut, dig up, or destroy in any manner.
- (l) "Threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

(132)

Sec. 3. The commission shall perform those acts necessary for the conservation, protection, restoration, and propagation of endangered and threatened species of fish, wildlife, and plants in cooperation with the federal government, pursuant to Public Law 93-205, 87 Stat. 884, and with rules promulgated by the secretary of the interior thereunder.

Sec. 4. (1) The director shall conduct investigations on fish, plants, and wildlife in order to develop information relating to population, distribution, habitat needs, limiting factors, and other biological and ecological data to determine management measures necessary for their continued ability to sustain themselves successfully. On the basis of these determinations and other available scientific and commercial data, which may include consultation with scientists and others who may have specialized knowledge, learning, or experience, the commission shall promulgate a rule listing those species of fish, plants, and wildlife which are determined to be endangered or threatened within the state, pursuant to Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Michigan Compiled Laws.

(2) The commission shall conduct a review of the state list of endangered and threatened species within not more than 2 years after its effective date and every 2 years thereafter, and may amend the list by appropriate additions or deletions pursuant to Act No. 306 of the Public Acts of 1969, as amended.

Sec. 5. (1) The director may establish programs, including acquisition of land or aquatic habitat, as are deemed necessary for the management of endangered or threatened species.

(2) In carrying out the programs authorized by this section, the commission may enter into cooperative agreements with federal and state agencies, political subdivisions of the state, or with private persons for the administration and management of any area or program established under this section or for investigation as outlined in section 4.

Sec. 6. (1) Except as otherwise provided in this act, a person shall not take, possess, transport, import, export, process, sell or offer for sale, buy or offer to buy, nor shall a common or contract carrier transport or receive for shipment, any species of fish, plants, or wildlife appearing on the following lists:

(a) The list of fish, plants, and wildlife indigenous to the state determined to be endangered or threatened within the state pursuant to section 4.

(b) The United States list of endangered or threatened native fish and wildlife.

(c) The United States list of endangered or threatened plants.

(d) The United States list of endangered or threatened foreign fish and wildlife.

(2) A species of fish, plant, or wildlife appearing on any of the lists delineated in subsection (1), excepting those also named in subsection (3), which enters the state from another state or from a point outside the territorial limits of the United States may enter, be transported, possessed and sold in accordance with the terms of a federal permit issued pursuant to Public Law 93-205 or an applicable permit issued under the laws of another state.

(3) A person shall not take, possess, transport, export, import, process, sell or offer for sale, or buy or offer to buy, any of the following species, or any part or product thereof: mountain lion, puma, or cougar (*Felis concolor*); jaguar (*Panthera onca*); gray or timber wolf (*Canis lupus*); free roaming feral horse; alligator, caiman and crocodile of the order *Crocodylia*.

(4) The commission may, by rule, treat any species as an endangered species or threatened species even though it is not listed pursuant to section 4, if it finds that (a) the species so closely resembles in appearance, at the point in question, a species which is listed pursuant to section 4 that enforcement personnel would have substantial difficulty in attempting to differentiate between the listed and unlisted species; (b) the effect of this substantial difficulty is an additional threat to an endangered or threatened species; or (c) the treatment of an unlisted species will substantially facilitate the enforcement and further the intent of this act.

(5) The director may permit the taking, possession, purchase, sale, transportation, exportation, or shipment of species of fish, plants, or wildlife which appear on the state list of endangered or threatened species for scientific, zoological, or educational purposes, for propagation in captivity of such fish, plants, or wildlife to insure their survival.

(6) Upon good cause shown and where necessary to alleviate damage to property or to protect human health, endangered or threatened species found on the state list may be removed, captured, or destroyed, but only pursuant to a permit issued by the director. Carnivorous animals found on the state list may be removed, captured, or destroyed by any person in emergency situations involving an immediate threat to human life, but the removal, capture, or destruction shall be reported to the director or his representative within 24 hours of the act.

(7) This section does not prohibit:

(a) The importation of a trophy under a permit issued pursuant to Public Law 93-205 which is not for resale and which was lawfully taken in a manner permitted by the laws of the state, territory, or country in which the trophy was caught, taken, or killed.

(b) The taking of a threatened species when the commission has determined that its abundance in the state justifies a controlled harvest not in violation of federal laws or regulations.

Sec. 7. A law enforcement officer, police officer, sheriff's deputy, or conservation officer shall enforce this act and the rules promulgated under this act.

Sec. 8. A person who violates any provision of this act and a person who fails to procure any permit issued under this act is guilty of a misdemeanor and shall be fined not more than \$1,000.00 nor less than \$100.00, or imprisoned for more than 90 days, or both.

Sec. 9. This act shall not take effect unless House Bill No. 5655 of the 1974 session of the legislature is enacted into law.

Sec. 10. This act shall take effect September 1, 1974.

This act is ordered to take immediate effect.


Clerk of the House of Representatives.


Secretary of the Senate.

Approved _____

Governor.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENDANGERED SPECIES TECHNICAL ADVISORY COMMITTEES

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APPENDIX C
Citizens Advisory Committee

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENDANGERED SPECIES CITIZENS' ADVISORY COMMITTEE

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Mr. Douglas Reece, Staff Assistant
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Ms. Mary Roth
West Michigan Environmental
Action Council
John Ball Park Zoo
John Ball Park
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Mr. Stanley A. Schultz
Noah's Ark Pet Shop
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351-0437

Mr. Floyd Lodge, Superintendent
Detroit Zoological Park
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171-398-0900

APPENDIX D

DEFINITIONS

Endangered - "A species of fish or wildlife, or plant life which is in danger of extinction throughout all or a significant part of its range. . ."

The state list of "endangered" species will be those species listed by the Secretary of Interior as endangered and resident in any part of their life cycle in Michigan. It will also include those indigenous species which the State of Michigan feels should be included on the national list of endangered species because they are on the verge of extinction. The definition refers to worldwide status of a species. Also, it recognizes subspecies of fish or wildlife, or plant life, or lower taxa in a common spatial arrangement, that reproduce and represent a truly unique, identifiable form.

Threatened - "A species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. . ."

The state list of "threatened" species includes those species, and lower taxa as defined under endangered, that are threatened with extirpation in Michigan. For the purposes of state law, the Michigan range is considered significant except when the state portion of the range is considered to be peripheral. Peripheral species will not be listed as "threatened" unless their populations are also threatened in their primary range outside of Michigan. Species whose range is now reduced to a relatively few isolated populations that do not interbreed are included within this definition, as are species which were once extirpated, but are now in the process of becoming re-established through introductions.

Rare or Scarce

A species or lower taxon that while not "endangered" or "threatened", is extremely uncommon in Michigan and deserves further study and monitoring. Peripheral species, not listed as "threatened" may be included in this category along with those species which were once "threatened" or "endangered" but now have increasing or protected, stable populations.

APPENDIX E

Annotated Lists

This is a proposed annotated list of endangered and threatened species resident in Michigan that is proceeding toward final approval in accordance with the Administrative Procedures Act. The annotations briefly set forth pertinent facts about each species and why it is endangered or threatened, as far as is known.

This list also includes, in most cases, rare or scarce species, and in some instances, peripheral species. These have no standing under the Endangered Species Act of 1974, Public Act No. 203, and do not appear on the Administrative Rules list, but rare or scarce and peripheral provide categories in which to place controversial or borderline cases so that they will not be lost sight of and will be studied and monitored in order that significant population trends are promptly noted and appropriate action taken.

The members of the technical advisory committees and the citizens advisory committee have devoted many hours over the past year to the development of the proposed lists, without remuneration of any kind. Their expert assistance, of the very highest caliber, has made it possible to accomplish the task.

RECOMMENDED LIST OF ENDANGERED, THREATENED,
AND RARE MOLLUSKS IN MICHIGAN

Mussels

ENDANGERED

1. Simpsoniconcha ambigua (Say).

The shells of this species used to be found in large windrows around the western end of Lake Erie. The living animals are presumed to live under flat stones and in places where mud puppies occur. This is the only mussel known to use mud puppies as hosts for its' glochidia.

2. Obovaria leibii (Lea) = O. subrotunda (Rafinesque).

Restricted to Lake Erie and mouths of rivers flowing into it.

THREATENED

1. Pleurobema clava (Lamarck).

Not uncommon formerly in the St. Joseph of the Maumee. Intensive farming with modern development may well eliminate it in the Michigan portion of its range.

2. Elliptio complanatus (Dillwyn).

Widely distributed in the Upper Peninsula but only found in the Ocqueoc drainage of the Lower Peninsula. Extensive damage to the Ocqueoc would eliminate this important zoogeographic species.

3. Cyclonaias tuberculata (Rafinesque).

A large river species; hence, it will take the punishment the fauna in lower portions of rivers in the southern part of Michigan suffer from pollution, dredging, etc.

4. Anodonta subgibbosa (Anthony).

Confined to muddy sloughs in the western part of the state. The sites are so few that a typical habitat would be worth salvaging.

5. Actinonaias ellipsiformis (Lea).

Limited in distribution to streams flowing west into Lake Michigan; it invaded the Saginaw drainage in the post-glacial connection between the Saginaw and Grand rivers. It has a creek ecology and needs pristine conditions.

6. Lampsilis fasciola (Rafinesque).

A small river species, found only in drainages of southeastern Michigan flowing to Lake Erie. The development of the Detroit-Toledo megalopolis may well spell its doom.

7. Dysnomia triquetra (Rafinesque).

A highly sexually dimorphic species found in small river conditions in streams flowing to Lake Erie. Its future will be similar to that of Lampsilis fasciola.

RARE

1. Carunculina glans (Barnes).

Mainly in Lake Erie or the mouths of rivers entering that lake. A small mussel, often with pink nacre.

2. Villosa (Micromya) fabilis (Lea).

A small and very thick-shelled species living in creeks of drainages to Lake Erie.

3. Dysnomia sulcata (Lea) = Dysnomia perplexa rangiana (Lea).

A highly sexually dimorphic species recorded mostly in the Detroit River drainage and drainages into Lake Erie, as well as Lake Erie itself.

Snails

ENDANGERED

None

THREATENED

1. Lymnaea megasoma (Say)

The only endemic North American lymnaeid which is found in sloughs of streams from Houghton Lake north. The ecology is sufficiently characteristic to warrant finding a site to be preserved.

2. Pomatiopsis cincinnatiensis (Lea).

Found today largely on the banks of the Raisin River where it has a unique ecology living on the mud between the waterline and the bank top. Its importance in relation to human schistosomiasis warrants trying to establish a preserve for its preservation in its natural setting.

3. Paludestrina (Fontigens) nicklineana (Lea).

A snail common in western Michigan living on watercress in cold water. Persons culturing watercress are apt to get rid of these snails. A molluscicide would spell its doom, should the few outlets of lakes that harbor it be threatened.

4. Amnicola binneyana (Hannibal) = Cincinnati emarginata (Say).

Inhabits mud bottom at a 15-foot depth or greater in the margins of the Great Lakes. Serves as food for some lake fish. It may be threatened with pollution now entering the lakes.

5. Zoogenetes harpa (Say).

Found on litter on limestone outcrops around shoreline from Alpena to Traverse City.

6. Mesodon (Polygyra) sayana (Pilsbry).

Known only from a few counties in the central part of the southern peninsula.

7. Mesodon (Polygyra) elevata (Say).

In deep woods, in the lower corners of the state, evidently entering from the states to the south of Michigan. A rich deep woods harboring it should be set aside to preserve it (along with other species of this kind).

8. Triodopsis notata (Deshayes) = Polygyra palliata (Say).

Lives in rich hardwoods in the Saginaw-Grand Valley region.

9. Anguispira kochi (Pfeiffer) = A. solitaria (Say).

Known from southeastern Michigan where it lives in forest litter.

10. Mesomphix cupreus (Rafinesque) = Omphalina.

In woods below the Saginaw-Grand Valley region where it inhabits old and undisturbed forests. Forest removal will spell its doom.

11. Haplotrema concavum (Say) = Circinnaria.

A carnivore that feeds on other snails. It occupies the southern portion of the Lower Peninsula. Seems to have become quite rare in southeastern Michigan.

12. Discus patulus (Deshayes) = Gonyodiscus perspectivus (Say).

Confined to rich, deep forests; often found along edge of decaying logs. Extensive lumbering and farming have greatly reduced it in its range in southern Michigan.

RARE1. Lymnaea haldemani (Deshayes).

Found often on reeds in lakes. Its distribution is spotty and known in Michigan from only a few lakes, like Reeds Lake near Grand Rapids from which it vanished years ago.

2. Lymnaea contracta (Currier).

Known only from a couple of lakes in Michigan, at depths far beyond the ordinary where the clarity of the water permits vegetation to grow to unusual depths; Higgins Lake is one of the few sites known to support this species.

3. Helisoma multivolvis (Case).

Known only from Howe Lake in northern Michigan. Several attempts have been made to find it in recent years, but it has not been found since the original discovery in 1906.

4. Pyrgulopsis letsoni (Walker).

Seldom, if ever, found alive but often found in pleistocene deposits. E. G. Berry found live material in the Huron River above Ann Arbor. The changes in the river in recent years probably preclude ever finding it there again.

5. Planogyra astericus (Morse).

Lives in litter at edge of cedar swamps. Recorded from Isle Royale and the Porcupine Mountains, Ontonagon County.

6. Philomycus carolinianus (Bosc).

A large slug with a mottled mantle, living often under loose bark of decaying hardwood trees.

RECOMMENDED LIST OF ENDANGERED, THREATENED
AND RARE INSECTS IN MICHIGAN

ENDANGERED

None

THREATENED

None

RARE

1. Appalachia arcana (Hubbell and Cantrall).

Known only from bogs in eight counties in northern part of the southern peninsula. Filling bogs and lowland, as at Wurtsmith Air Force Base (The type locality of *arcana* now under ten inches of concrete), can result in extirpation of the species.

2. Atlanticus davisii (Rehn and Hebard).

An Appalachian form with disjunct, relict populations in seven counties in the northern part of the southern peninsula of Michigan.

3. Oecanthus pini (Beutenmuller).

An Appalachian form relict and disjunct in Berrien County.

4. Oecanthus laricis (T. J. Walker).

Known only from two counties in southern Michigan and one in northern Ohio. A bog form living on Tamarack.

5. Liodessus cantralli (Young).

This water beetle is known only from a small bog lake in Livingston County, Michigan.

RECOMMENDED LIST OF ENDANGERED, THREATENED
AND RARE FISHES IN MICHIGAN

ENDANGERED

1. Longjaw cisco, Coregonus alpenae (Koelz).

This species is officially listed as endangered by the Secretary of the Interior. It was last reported in Lake Erie in 1961, and is believed to be extinct in Lakes Huron and Michigan.

2. Deepwater cisco, Coregonus johannae (Wagner).

This species is regarded (by the Great Lakes Fishery Laboratory, U.S. Department of Interior) as extinct in both Lake Huron and Lake Michigan, the only known places where it occurred. Nevertheless, we recommend this listing to get the species on record for a year or so. It is very difficult to be certain of extinction of species unless the distribution is so localized that there can be no question of survival.

3. Blackfin cisco, Coregonus nigripinnis (Gill).

Regarded to be extinct in Lakes Ontario, Huron, Michigan and Superior. Recent studies on Lake Superior fish indicate that, although the species was recorded from this lake by Koelz, in actuality the species he had from Lake Superior was C. zenithicus (Parsons et al., 1975, mimeo account of status of some endemic Great Lakes fishes). The reason for listing this species is the same as given under the account of C. johannae.

4. Shortnose cisco, Coregonus reighardi (Koelz).

Regarded as extinct in Lake Ontario, endangered in Lakes Huron and Michigan, and greatly reduced in Lake Superior (according to the Great Lakes Fisheries Laboratory).

5. Shortjaw cisco, Coregonus zenithicus (Jordan and Evermann).

Regarded as greatly reduced in Lake Superior, and as erroneously recorded by Koelz from Lakes Huron and Michigan (his specimens are properly identified as C. reighardi--Parsons et al., 1975--see above).

6. Blue pike, Stizostedion vitreum glaucum (Hubbs).

Although we have no valid basis for regarding this fish as surviving at the present time in Lake Erie, the only known locality of occurrence, we recommend "endangered" status for a year or so, just to keep the species "on record" until its status is finalized. The fish is officially recognized as endangered by the Secretary of the Interior.

THREATENED1. Lake sturgeon, Acipenser fulvescens (Rafinesque).

Sturgeons as a group are late-maturing, and very long-lived fishes that do not tolerate a high level of exploitation. They are diminishing notably in numbers in many parts of the world. In Michigan, because of purposeful over-exploitation during the late 1800's, this species was greatly reduced in all lakes by the early 1900's. In fact, this fish became so scarce by the 1920's that sturgeon fishing was prohibited throughout most U.S. waters of Lakes Superior, Michigan and Huron. The species now occurs in Michigan in less than five percent of its former abundance. We recommend "threatened" status because there are places where a regulated sport fishery is compatible with maintenance of the species. The fishery should be carefully monitored to make sure that sufficient breeding stock persists each year. Maturity is not attained by most females of this species until an age approaching 25 years is reached; males mature between 14 and 20 years.

2. Cisco or lake herring, Coregonus artedii (Lesueur).

It is regarded by the Great Lakes Fishery Laboratory as rare or threatened in Lake Erie, threatened in Lakes Huron and Michigan, and declining (i.e., showing a recent general decline in abundance that obviously is not part of natural fluctuations) in Lake Superior. Placing it in the "threatened" category means that it becomes a legal candidate for financial aid in trying to halt its decline.

3. Bloater, Coregonus hoyi (Gill).

This species is declining in Lake Huron, threatened in Lake Michigan, and declining in Lake Superior. It is assigned to "threatened" status for the reason given above, for C. artedii.

4. Kiyi, Coregonus kiyi (Koelz).

Regarded as extinct in Lakes Ontario and Huron, endangered in Lake Michigan, and declining in Lake Superior (Great Lakes Fishery Laboratory). These are the only lakes from which the species is known.

5. Silver shiner, Notropis photogenis (Cope).

This species, peripheral in Michigan, is now very rare here, occurring naturally only in the southeastern part of the state. In recent years, it has been taken only in the Huron River (1940, 1954) and Raisin River (1973). This species, and several to follow, are part of the natural wildlife heritage of Michigan. The Committee feels that, irrespective of the status of peripheral Michigan species outside of the state, it is important that we retain as much of our native biota as possible. Placing this species in the threatened category calls attention to its rarity in Michigan, and to its need for help if it is to remain a part of our biota.

6. Redside dace, Clinostomus elongatus (Kirtland).

This species has a very discontinuous range in the U.S. and occurs in Michigan only in a few tributaries of Lake Erie. Our only recent record (1970) is from near Farmington, in the outlet to Devil's Lake. Reasons for listing this peripheral species are the same as given above for the silver shiner.

7. River redhorse, Moxostoma carinatum (Cope).

The first (and last) valid known record of this mollusk-eating fish for Michigan is of a single adult taken on 25 July 1935 at Croton Dam, Newaygo County, in the Muskegon River drainage. An effort should be made to determine if the species still persists in that basin.

8. Northern madtom, Noturus stigmosus (Taylor).

This small catfish is known in Michigan only in the Huron River, except for one record (1938) from the junction of Lake St. Clair and the Detroit River. It has not been observed in the Huron River since 1954. Reasons for retaining it in our fauna are the same as given for the silver shiner (item 5.).

9. Eastern sand darter, Ammocrypta pellucida (Agassiz).

Species of this genus generally require clear, clean water with sand bottom; this type of habitat is under threat nearly everywhere. This fish--rare and peripheral in Michigan--is known from the St. Joseph River of the Maumee River basin (1929); Little Raisin River in Dover Township, Lenawee County (1927); Rouge River at Rouge Park, Wayne County (1936); Strawberry Lake, Livingston County (1949--and likely still present); Bouvier Bay of Lake St. Clair (1942); Big Gallagher Lake, Livingston County (1955); and Saline River near its mouth (1929). Reasons for retaining this peripheral species in Michigan's biota on our list are the same as given for the silver shiner (item 5.).

RARE

None

RECOMMENDED LIST OF ENDANGERED, THREATENED
AND RARE AMPHIBIANS IN MICHIGAN

ENDANGERED

None

THREATENED

1. Marbled Salamander, Ambystoma opacum (Gravenhorst).

This chunky and attractive salamander is very restricted in distribution. It is unusual in that it usually lays eggs during the fall in or near places likely to be flooded by winter moisture. The adults live in forested and low flood plain areas. Landfill and land clearance are the most obvious threat to their existence in the state; it is known from only one Michigan locality--in Berrien County.

2. Small-mouthed Salamander, Ambystoma texanum (Matthes).

This salamander is highly fossorial, spending much of its time in burrows and under logs. It is most abundant in somewhat open hardwood areas. It requires temporary pools for breeding in late winter and, therefore, is vulnerable to land clearing and draining practices; known only from three southeastern counties in Michigan, where it is common in a few localities.

3. Western Lesser Siren, Siren intermedia nettingi Goin

Siren are peculiar snake-like salamanders with external gills and short front limbs; hind limbs are absent. They are entirely aquatic and extremely restricted in their distribution in Michigan. Therefore, even slight changes in habitat in the few areas in which the species occurs could result in its extirpation in Michigan. It is, however, a very common species in many places in southeastern U.S. In Michigan, it is known from one locality each in Allegan and Van Buren counties.

RARE

1. Four-toed Salamander, Hemidactylium scutatum.

This small, poorly known salamander is generally found associated with decaying logs in wet woods; it requires ponds and bogs for breeding. Clearing of forests and woodlots, and draining and filling of low areas, are threats to its existence. In Michigan, we have records from 22 counties, scattered throughout the state.

RECOMMENDED LIST OF ENDANGERED, THREATENED
AND RARE REPTILES IN MICHIGAN

ENDANGERED

one

THREATENED

- . Black Rat Snake, Elaphe obsoleta obsoleta (Say).

This is the largest species of snake native to Michigan; it may reach a length of more than seven feet. Although common farther south in adjoining states, it is relatively uncommon in Michigan. This snake inhabits forests and woodlots; therefore, deforestation is the principal threat to its existence in Michigan. It feeds on small mammals, birds and bird eggs. It has potential economic importance by feeding on small rodents that feed on grain; however, it is not sufficiently common for this economic asset to be of significance. In Michigan, it is known from about 13 localities in eleven south-central and southeastern counties.

- . Northern Copperbelly, Natrix erythrogaster neglecta Conant

One of the largest of watersnakes in the U.S., this species, seemingly does well even in areas that are opened for development. However, since large water-dwelling snakes are considered poisonous by most people, slaughter of the snakes by man probably constitutes the greatest threat to its existence. In Michigan, it is known from a single locality in each of four southwestern counties.

- . Kirtland's Water Snake, Natrix (Clonophis) kirtlandi (Kennicott).

This small, attractive watersnake is poorly known throughout its range. It lives mostly in open, grassy areas and is less aquatic than most watersnakes. The young are born alive, as in other related species. Although it may be abundant in scattered localities, it is a rare species and probably threatened throughout its range. The species may have been rare and probably threatened prior to widespread habitat destruction by man. It has been reported in greatest abundance in urban localities in adjoining states, but its future there is obviously threatened by real estate developments. In Michigan, it is known from only seven localities in three southern counties.

- . Eastern Box Turtle, Terrapene carolina carolina (Linnaeus).

This attractive land turtle is fairly widely distributed in Michigan, but is spotty in its occurrence and nowhere very abundant. Most often found in or near open hardwood stands with sandy soil. The species is

commonly caught for pets, and such collecting represents a distinct threat to this species. Because of its long life cycle, recovery from population losses is extremely low. The species eats both vegetable matter and small invertebrate animals. In Michigan, it is known from 17 counties in western lower peninsula north to Benzie County.

RARE

1. Five-lined Skink, Eumeces fasciatus.

This small, shiny lizard is striped and possesses a bright blue tail when young. It is found most often on, or beneath, rotten logs or loose bark in wooded areas. Its eggs, which it guards, are laid in decaying wood. It was once common in beach debris along Lake Huron, but clearing of the beach areas during housing development has destroyed much of its habitat. Land clearing and removal of downed timber and debris from woodlands pose a major threat to the survival of this species. In Michigan, it is known from 50 or more localities scattered over the state; including the central part of the Upper Peninsula.

2. Eastern Spiny Softshell, Trionyx spiniferus spiniferus.

This strictly aquatic turtle, with a flexible shell, is widespread in lower Michigan. It lives in streams, lakes, rivers and ponds, but prefers sandy aquatic habitats and needs sand bars for reproductive purposes. Its food in Michigan consists largely of crayfish and insects. In some areas within its range, the species is quite abundant in sewage treatment ponds; propagation of this species could be attempted in such ponds in Michigan. Its flesh is considered a delicacy as human food. In Michigan, we have records from 20 counties, mostly in southern lower peninsula.

3. Spotted Turtle, Clemmys guttata.

This turtle may be found on land or in water, but seems to occur most often in bog areas, especially along small streams through meadows. It has seldom been found in abundance in Michigan, even though it occurs over much of the lower peninsula. Because it is both rare and attractive, it is likely to be collected as a pet. Drainage and over-grazing are threats to this species. In Michigan, it is known from about 25 localities in 21 counties, almost all in the southern half of the lower peninsula.

4. Wood Turtle, Clemmys insculpta.

This, like the box turtle, is among the most terrestrial of all U.S. turtles. It is common in woodlands, often associated with streams or other aquatic habitats. It feeds on a variety of plants, insects, earthworms, and molluscs. This species is widespread in Michigan, especially in the north; but nowhere is it common. Because it is not nearly so attractive as the spotted turtle, it is unlikely to be collected as a pet as often as the latter. In Michigan, it is presently known from 23 counties, from the middle of the lower peninsula through the upper peninsula.

RECOMMENDED LIST OF
ENDANGERED, THREATENED, AND RARE OR SCARCE
MICHIGAN BIRDS

(The last category has no legal status under
the Michigan Endangered Species Act.)

ENDANGERED SPECIES (Designated as Endangered on federal lists)

1. Peregrine Falcon -- Falco peregrinus Tunstall

The peregrine falcon at one time was more commonly called the Duck Hawk, in reference to its ability and inclination to take ducks as food. It is best that that name be dropped altogether to avoid prejudicing anyone against this magnificent bird. Falcons were so highly regarded in ancient times that they actually were worshipped in Egypt. That they could be trained for hunting was discovered about 2000 B.C. in Asia. By the twelfth century A.D. falconry was widely practiced throughout Europe. Falcons are still highly valued for such use by modern-day falconers, but the peregrine can no longer be so used in the United States because of its endangered status and protection under the federal Endangered Species Act of 1973.

This beautiful raptor is gone from Michigan as a breeding bird; the last nests as far as is known were reported in the late 1950's. In 1912 Barrows (Michigan Bird Life) said the species was nowhere common in Michigan. Since it prefers a cliff situation for nesting, the peregrine certainly has always had considerably less nesting habitat to pick and choose from than the other hawks. Favored cliffs are those with ledges up high with little chance of disturbance by man or other mammals. One author ventures that "there is a threshold of acceptability of a cliff by peregrines that is subject to themselves." Dr. Tom Cade who directs falcon breeding research at the Cornell University Laboratory of Ornithology feels that tradition may play a part in linking generations of peregrines to the same cliff. If the sequence of use is broken a site may be reoccupied at once by other falcons or it may never be used again. Cade also speaks of mated peregrines which "have successfully established all the social adjustments required for a strong pair bond." All of these and still other factors would seem to pose problems for any effort to reestablish breeding pairs to a former range. Such attempts have been made and are to be continued by the Cornell laboratory within the continental United States east of the Mississippi River where the peregrine has been missing as a nester for some years.

The primary cause of the peregrine falcon's extirpation from so large a part of its former range is considered to be environmental pollution with pesticides, particularly DDT. As with other raptors such as the bald eagle, thinning of the eggshells which usually results in hatching failure has been very detrimental to successful reproduction.

Food of the peregrine consists almost entirely of bird life -- waterfowl, shorebirds, and a great variety of other birds from grouse to the smaller passerines.

It would seem that controls on the use of DDT and certain other pesticides might possibly allow the peregrine to reestablish itself in suitable habitat. Optimistically, this could happen in Michigan. In behalf of this bird our most productive first efforts might well be to cooperate in any project for introducing pen-reared peregrines into suitable Michigan habitat, give absolute protection to any nest site whether from natural or artificial reestablishment, and strictly enforce the law which gives full protection for the bird itself.

2. Kirtland's Warbler -- Dendroica kirtlandii (Baird)

The Kirtland's warbler is Michigan's own bird when considering breeding populations. It is known to nest only in several counties in north-central Lower Michigan -- nowhere else in the world. Strangely enough its nesting grounds were not discovered until 52 years after the first specimen was collected in 1851. This occurred on May 13 near Rockport, Ohio when the bird was on migration. The species was named *kirtlandii* after a Dr. J. P. Kirtland in honor of his promotion of the knowledge of natural history. The first bird found in winter was recorded on January 8, 1879, on Andros island in the Bahamas. In the years following, it was well established that these islands were the wintering grounds of this warbler. Between September and April the bird has never been seen anywhere else.

Discovery of the nesting grounds was by an experienced ornithologist from the University of Michigan Museum of Zoology who, while on a fishing trip in Oscoda County, heard several of the birds singing in the jack pine forest country. A specimen he collected was identified as the Kirtland's Warbler by Dr. Norman Wood of the University museum.

After it was discovered that this warbler nested in Michigan's northern Lower Peninsula, further studies were made to determine the extent of the breeding range. W. B. Barrows who published his comprehensive "Michigan Bird Life" in 1912 wrote of his attempt to locate the warbler in other counties with habitat similar to that in the known nesting areas, but without success. He surmised that eventually studies might show this bird to nest in Wisconsin, Minnesota, on up to Hudson Bay, and even westward into Manitoba. Such was not to be the case, however, and Michigan retained the right to claim the Kirtland's as its own warbler. The maximum breeding range was found to occupy an area of only about 85 miles by 100 miles in size.

It is not known what the maximum breeding population of this warbler may have been after the nesting grounds were discovered. But, because of its limited range, numbers must always have been very limited in comparison to those of most songbirds. It remained until 1951 for a reliable count to be made. In a cooperative report headed by Harold Mayfield a June census was conducted by counting all singing males that could be located. A total of 432 males were recorded on 91 different sections of land. All areas known to support or suspected of supporting warblers were checked. By that year many formerly occupied areas had no singing birds. Over the years since then, additional censuses have been made, first at 10-year intervals, but since 1970, annually. The areas and counts for these six censuses are:

Year	Counties	No. Seen	Singing Males	Year	Counties	No. Seen	Singing Males
1951	8	91	432	1973	4	25	216
1961	9	86	502	1974	5	26	167
1971	6	27	201	1975	6	31	179
1972	4	25	200	1976	6	47	200
				1977			218 + 1

*Goal of
Breeding
Plan*

These counts show clearly that the Kirtland's Warbler is indeed endangered -- in danger of complete extirpation. Fifteen years ago there undoubtedly were more than 1,000 of these birds on the breeding territory in the northern part of our State. Five years ago there were less than half that number; and by 1974 the number was down to about one-third as many.

Concerning breeding range, the problem seems to be simply that this bird demands a very precise sort of habitat. They are selective as to soil type; kind, size, and density of tree cover; and ground cover.

Typically the habitat most attractive to the nesting warblers is a stand of jack pine with special characteristics. A tract must be at least 80 acres in size, preferably larger. There must be a considerable amount of open area interspersed with homogeneous thickets of small pines which must be from 6 feet to 20 feet in height, or up to 20 years of age. Nesting sites are chosen by the birds where the pines are thick enough to present low interlocking branches, still alive and green, in edge situations next to openings. Stands of grasses and low shrubs such as blueberry, and sweet fern, all less than a foot high, underneath the pines, make up the ground cover. Grayling sand is so typical of the nesting range of this bird that it seems almost as if the warbler seeks out the jack pine only if it is growing on this particular type of soil.

Through studies by the Department, U.S. Forest Service, and ornithologists, it has been determined that in addition to the necessity of perpetuating the preferred habitat of the warbler, certain other steps must be taken if this bird is to be saved. Cowbird parasitism of warbler nests has been determined to be a severe problem. In recent years cowbirds have been trapped and removed from the breeding grounds by the thousands. Indications are that this has improved rearing success of the warblers.

As a further safeguard, it has been determined that the warblers must not be disturbed on the nesting grounds by intrusion of motor vehicles, maneuvering national guardsmen, or even by researchers or bird watchers. Seasonal closure to entry of the prime nesting areas has been placed in effect.

An official Kirtland's Warbler Recovery Team has been appointed by the Secretary of the U.S. Department of the Interior to develop a total plan for recovery and perpetuation of the species. Its stated goal is to achieve and maintain a breeding population of 1,000 birds on the traditional Michigan range. Currently maintenance of sufficient optimum breeding habitat and control of cowbirds are considered to be the two main requirements for accomplishing this goal.

THREATENED SPECIES

1. Double-crested Cormorant, Phalacrocorax auritus (Lesson)

The cormorant was not known to breed in Michigan in the early 1900's, though it was distributed generally over the state during migrations. Although never a common species, breeding populations were recorded later in Great Lakes shoreline habitats until about 1960. In the 15 years since then it is doubtful that any successful nesting has occurred. The last known nesting attempt in Michigan, unsuccessful, was in 1972 -- by seven pairs near Little St. Martin's Island. The species has a low reproductive rate and thinning of eggshells due to pesticide buildup, mainly DDT, is considered an important factor in reduced breeding success. The cormorant does not breed until two or more years of age. Colonies are extremely vulnerable to disturbance by man which leads to loss of eggs and young to gulls.

its diet consists mainly of fish and herpetological species.

With DDT use now banned in Michigan, primary recovery efforts should be aimed mainly at protecting any habitat occupied by cormorants attempting to nest.

2. Cooper's Hawk, Accipiter cooperi (Bonaparte)

Formerly this hawk was one of Michigan's most abundant. It nested throughout the state, but most commonly in southern Michigan, occurring here at all seasons. Some authorities noted a drastic decrease over the years when DDT was commonly in use. Very few of these birds were found breeding in the late 1950's and throughout the 1960's. There is no conclusive evidence of recovery since then. In the last three years only seven nest sites have been known in Michigan.

The diet of this hawk is mainly bird life. Years ago it was one of the most efficient at taking chickens in areas where poultry was allowed barnyard freedom but this feeding propensity is no longer a concern under modern conditions of poultry housing.

3. Red-shouldered Hawk, Buteo lineatus (Gmelin).

In the early 1900's the red-shouldered was an abundant hawk, frequenting all parts of the state. As recently as 25 years ago it was perhaps the most common hawk in southern Michigan. It has undergone a severe decline since then, causes for which are poorly understood; probable reasons are loss of habitat and environmental pollutants. The bird takes a great variety of animal life for food; much of this consists of the small mammals, reptiles, insects and other species found in the lowland woods along rivers and creeks, the favorite nesting habitat of this hawk.

Now, most breeding areas are to be found in the northern Lower Peninsula. Any woodlands where nests are found should be left undisturbed to help recovery.

4. Bald Eagle, Haliaeetus leucocephalus (Linnaeus).

This bird, the largest raptor in Michigan, is distributed throughout the Upper Peninsula and much of the northern Lower Peninsula, especially in association with water. It is thought to have nested in every county of the state originally. The 1975 spring survey found 61 resident pairs in the Upper Peninsula, 27 resident pairs in the Lower Peninsula.

Production of eagles has at last appeared to "turn around" after a population decline beginning about 30 years ago. The presence of chlorinated hydrocarbons in the environment has been a demonstrated cause of reproductive failure in this and other predatory birds, especially those whose diet consists mainly of fish as does that of the eagle. With increasingly tight controls of pollutants such as DDT, contaminant loads of monitored wildlife has also declined. This is believed to be at least part of the cause of increased nesting success. Some dangerous pollutants such as PCB remain largely uncontrolled, so a threat still exists. Loss of nest sites through encroaching developments and losses to gunfire remain as other major population threats.

The DNR continues to monitor nesting success in cooperation with the Fish and Wildlife Service and the Forest Service biologists. Protection is given nesting sites in the state forest management plans. Inclusion on the threatened species list will focus public attention on this species which needs continued attention.

5. Marsh Hawk, Circus cyaneus (Linnaeus).

This species also was one of the commonest of Michigan's summer resident hawks. Its feeding habits lead to its being readily observed as it sweeps low across marshlands, grassy swales and fields. Small mammals, insects and some ground nesting birds form much of its diet.

The marsh hawk too has suffered a serious population decline, noticeably so during the period when DDT was in heavy use. Greatest reduction in numbers has been in southern Michigan; it fares better in the Upper Peninsula. Drainage and other destruction of marshland areas which has reduced the amount of this bird's favorite habitat undoubtedly has contributed to the decline.

6. Osprey, Pandion haliaetus (Linnaeus).

As with the bald eagle, distribution of the osprey is confined to the northern portions of the state. Osprey range is somewhat more restricted coinciding directly with water systems. Original distribution was nearly cosmopolitan, as extensive as that of any bird of prey.

Sharp declines in osprey populations were noted throughout the eastern United States in the late 1950's and early 1960's, coincident with large-scale uses of organochloride pesticides (DDT, heptachlor, dieldrin, endrin, chlordane).

Improved production noted in the 1975 spring nesting survey gives some cause for optimism. With the Michigan population composed of 46 resident pairs in the Upper Peninsula and 35 resident pairs in the Lower Peninsula, 97 young were produced in 1975, the best production noted in the past 11 years surveyed. However, production still barely reaches the level required to maintain a stable population. Pesticide controls have improved the level of ecosystem contamination, but PCB's remain largely uncontrolled. Wilful shooting continues as a drain on this small population.

The DNR annually surveys nest sites and production in cooperation with the U.S. Fish and Wildlife Service and U.S. Forest Service. Guidelines protecting nest sites and restricting human activities in nest vicinities are incorporated in forest management plans.

This bird would benefit from inclusion on the DNR list of threatened species. The population remains at a precariously low level and public attention to its plight could marshal support for protection and enhancement.

7. Greater Prairie Chicken, Tympanuchus cupido (Linnaeus).

Once plentiful in many parts of Michigan, including the Upper Peninsula, prairie chickens maintain a precarious hold in a few isolated colonies in the northern Lower Peninsula. The 1975 spring census of known booming grounds indicated a population of only approximately 50 birds, fewer than in 1974, frequenting a few locations in Osceola and Missaukee counties. Habitat changes due to altered land use patterns and successional changes from grass, to brush, to forests and intensified agriculture have caused their disappearance from other areas.

A DNR management plan for the principal colony at Marion has been completed. Habitat manipulations, including prescribed burns, planting of small grains and corn, mowing, and brush cutting are routinely applied to prairie chicken lands. State land ownership is being increased and restrictive measures implemented to give the birds additional protection against disturbance. The area surrounding the booming ground is posted against entry during the mating and nesting season. Since 1975 they have been completely protected against killing in the Lower Peninsula under the Natural Resources Commission order. The birds were believed to have disappeared from the Upper Peninsula by 1960.

Public response to the plight of the prairie chicken has been admirable. Approximately \$31,000 has been donated in its behalf for land acquisition and management of the birds.

Designation as a threatened species on a state list would not greatly alter our activities in behalf of this bird; we presently do all that is possible within practical limits for land use constraints and financial resources. However, the publicity resulting from an official "threatened" designation might result in increased public awareness of the bird's plight and further public support for our recovery program.

8. Piping Plover, Charadrius melodus Ord

At the turn of the century this water bird which feeds on aquatic life including insects, crustaceans and mollusks, was reported to be found everywhere along the shores of the Great Lakes. It was considered to be a breeder wherever conditions were suitable, meaning undisturbed, flat pebbly beaches above the water line and below the dunes. In 1951, one authority (Wood) noted that it was a summer resident north to the top of the Lower Peninsula and into Delta and Schoolcraft counties. In 1974, another authority (Pettingill) recorded it as breeding in Michigan only at Waugoshance Point, Emmet County and at Rogers City where they had nested successfully for the past four years. No successful nests were found in the Waugoshance Point area.

Increasing human recreational use of the lakeshore beaches, disruptive to nesting, is considered the primary threat which could doom this bird in Michigan. Excessively high water levels of the Great Lakes which eliminate much suitable beach areas normally available for nesting has also been a problem.

Protection of nesting areas perhaps by state acquisition or through arrangements with private owners if possible would seem to offer effective means to insure a breeding population.

9. Barn Owl, Tyto alba (Scopoli).

The barn owl which is nearly worldwide in distribution was formerly a resident throughout southern Michigan with a few records for the northern Lower Peninsula. It is unusual among the owls in that it has always been inclined to live and nest close to humans, and in the past frequently nested, in cities and villages, in a church tower, old mill or abandoned building. Mice are a prominent part of its diet.

Although never as plentiful here as in many other parts of its range, numbers are now much reduced. In the mid-1940's there were at least 10 known nest sites in six southern counties; some with as many as seven young per nest, not an unusual number for this species. Now it is apparently confined to Monroe County with four known nests in 1975 and possibly Berrien County (one questionable nesting record for 1975). Old silos have become important to the barn owl as nesting sites. At least one on a game area was preserved for a nesting pair.

It would seem feasible to supply suitable nesting sites if lack of such is an important factor causing the population decline, as some believe. Nest boxes have been supplied with some success by at least one Audubon Society member. An active program to furnish such help for the bird could mean survival as a resident of Michigan.

10. Loggerhead Shrike, Lanius ludovicianus Linnaeus

The shrike was considered by early observers as beneficial because its diet consisted mainly of insects with some mice and a few birds taken occasionally. Although once widely distributed over most of rural Michigan it occurred only sparingly. In the late 1800's and early 1900's it was considerably more common than now. Already prior to 1940 it became apparent that numbers were decreasing and by that date they had become very uncommon residents. Competent observers noted only a few nesting successfully over the years since then, from the Detroit area to Emmet and Cheboygan counties in the north. Between 1940 and 1960 these records seemed to indicate brief local increases. Now they are considered to occur as nesters quite rarely.

No good reasons for the decline of the shrike in Michigan have been ventured.

RARE OR SCARCE

1. Common Loon, Gavia immer (Brunnich).

This bird has become rare through a slow, steady decline in breeding range, a decline probably due to buildup of pesticides in fish which constitute almost their entire diet, and disturbance of breeding grounds caused by recreational boating. It has a low productive rate; one brood or two young per season.

2. Black-crowned Night Heron, Nycticorax nycticorax (Linnaeus).

Early Michigan records of the species up to 1904 and 1912 indicate that it was rare or uncommon, however, this may have been in part due to smaller numbers of field workers in those years, since the first nesting observed in the state (1916) was substantial (350 pairs) and thereafter for 40 years large colonies of hundreds of nesting pairs were under observation in southeastern Michigan and Saginaw Bay areas. In 1957, previously large colonies were suddenly and completely abandoned and in the following 15 to 18 years, the number of birds was extremely low with apparently little or no nesting. Then in 1971 there were indications of the beginnings of possible recovery (44 nests in one colony on Gull Island, Alpena County); in 1974 about 90 birds were reported in mid-June in Erie marshes, Monroe County. In 1975 a DNR biologist noted as many as 50 birds in the air at one time in mid-summer, mostly immatures at the Nayanquing Point Wildlife Area, and other observers found several nesting pairs and an influx of about 100 immatures near the location of a former large colony at Bay City. Causes of the decline are not specifically known, but high water levels or pesticides or both are suggested. This species feeds mainly on fish and other aquatic life.

3. American Bittern, Botaurus lentiginosus (Rackett).

Reported as a common summer resident of Michigan as late as 1957. Species is easily identified by both its physical appearance and distinctive call, which make it one of the more commonly reported heron species. There has been an increase in field reporting of birds in general during the last 10-15 years without a corresponding increase in reports of the bittern.

Even though the species has been mentioned as one needing special attention regarding the reporting of sight records, the number of observations has continued to decline. Only four breeding records have been recorded in the last four years. Causes of the apparent decline of this species are not known at present, but habitat destruction by the draining of suitable marsh habitat, other environmental factors, and pesticides may be involved. It feeds on fish and aquatic animal life.

4. Sharp-shinned Hawk, Accipiter striatus Vieillot

Breeding distribution of this secretive species is poorly known. Transient over most of the state, nesting usually only in the Upper Peninsula. Its diet is almost entirely birds. Is sensitive to environmental pollutants.

5. Pigeon Hawk, Falco columbarius Linnaeus

It is a rare breeder in the north. Never common in Michigan, its former breeding distribution is poorly known; present status is unknown. Is sensitive to environmental pollutants. Feeds on small birds.

6. Sandhill Crane, Grus canadensis Linnaeus

This species feeds on fish, herpetological species, mammals, insects and vegetable matter. Most of these cranes nest in marsh areas that are constantly threatened by developments, drainage, muck farming, oil drilling, and road building. Protected areas include Baker Sanctuary, Haehnle Sanctuary, Rose Lake Wildlife Research Center, and some surrounding farm areas where the owners are "sympathetic" to the cranes, and the Seney Wildlife Refuge in the Upper Peninsula. It is felt that the cranes in Michigan owe their survival to the concerted efforts of conservationists in protecting them. Their survival as breeding residents seems not to be in jeopardy at this time.

7. Caspian Tern, Hydroprogne caspia (Pallas).

Although largely a cosmopolitan species, the breeding population in Michigan is confined to isolated islands in Lake Michigan and Lake Huron (breeding recorded in up to five counties). Exact numbers of breeding pairs are not known for the period prior to 1923. In 1924, Shoe Island alone had between 1,000-1,500 breeding pairs, in 1962 only 100 breeding pairs; an additional 500± breeding pairs were observed on

two other islands that year. Because caspian terns are fish eaters, the population should be expected to suffer similarly as have other populations decimated by DDT and other pesticides.

8. Barred Owl, Strix varia Barton

This was Michigan's most common owl, most abundant in the south, in the early 1900's. Similar to the red-shouldered hawk in this respect, it is a resident of woodlands, especially those near water, seldom leaving such habitat. It preys mainly on mice, other small mammals, and aquatic life such as frogs and crayfish. The probable cause of reduced numbers is loss of habitat, as farm woodlots and other mature forested areas have been eliminated.

RECOMMENDED LISTS OF
ENDANGERED, THREATENED, RARE OR SCARCE, AND PERIPHERAL

MICHIGAN MAMMALS

(The last two categories have no legal status
under the Michigan Endangered Species Act.)

ENDANGERED SPECIES (Designated as Endangered on federal lists)

1. Indiana bat, Myotis sodalis Miller and Allen

The Indiana bat, a small insectivorous species weighing about 10 grams, frequents natural cavities in the "cave country" of eastern United States. Its normal distribution extends from Missouri in the southwest to New England in the northeast. Since Michigan lacks suitable natural caves, this bat probably has never frequented Michigan with great regularity except that it appears here in the summer months. As far as specimens are concerned, other than one recorded for Grosse Isle in 1928, there have been a few recoveries in summertime of individuals banded in Kentucky. Since bats fly and the cave country in southern Indiana and Ohio is not far away, it is highly probable that this bat may visit southern Michigan more than generally realized. Nevertheless, in Michigan no special protective measures can be designed for this species whose numbers across its entire worldwide range have decreased to the point where its continued survival is considered in jeopardy.

2. Eastern timber wolf, Canis lupus lycaon Schreber

The gray wolf formerly was one of the most widespread in occurrence of all terrestrial mammals. In Eurasia it was found as far south as India and in North America as far south as Mexico City. The subspecies, eastern timber wolf, has been designated officially as endangered by federal authorities because it no longer occurs over large expanses of its original range in the United States. This is the subspecies found in Michigan and which occurs also in Minnesota and Ontario. The wolves which are still found plentifully in Alaska are not of this subspecies.

Michigan became a state in 1837; in 1938 the Legislature instituted a wolf bounty. Federal and state trappers were substituted for the bounty from 1921 until 1935. By the time the restored bounty was dropped in 1960 it was too late to help the wolf. As late as 1956, 30 were bountied, then seven in 1957, and only one in 1959. The bounty was without doubt an important decimating factor.

After the wolf population was no longer able to sustain itself as a reproducing population, full legal protection was finally provided by legislative action in 1965. However, the coyote is still bountied in Michigan and coyote trapping and shooting, for bounty collection, remain a real threat to any wolf.

There is still "wolf country" on Michigan's mainland (the Isle Royale wolves are well known) but in the last 13 years no more than two wolves have been observed together and probably no more than six or so exist here.

The only effective method for re-establishment now would seem to be introduction of enough individuals to serve as a nucleus for a pack. This was tried unsuccessfully on a modest scale in 1974 when, in a project that gained national attention, four wolves, two adult males and an adult and a juvenile female, were captured in the wild in Minnesota and released in the remote Huron Mountain country. Two were shot, one taken by a coyote trapper, the other killed by a car.

There would seem to be three prerequisites for further attempts to restore the wolf:

1. Removal of bounty on coyotes.
2. Political support to obtain funding as well as bounty removal.
3. Public acceptance of the wolf as a valuable member of our wildlife heritage to gain better protection from human interference.

THREATENED

1. Least shrew, Cryptotis parva (Say).

This southeastern species reaches the northern limits of its range in southern Michigan. Records in prior years indicate that this shrew has been found as far north as the fourth tier of southern counties. It is supposed that the least shrew is a newcomer to the fauna of the state, possibly not moving northward until land clearing by early day settlers provided suitable open habitat. As late as the 1940's, the little shrew was observed with fair regularity in southern Michigan. However, the paucity of records in recent years may indicate that the animal has experienced a decline. Perhaps this has been the result of land use practices or successional changes. At any rate, in 1976 this little shrew must be considered rare in Michigan, and records are solicited from field observers of any of the southern counties.

2. Pine marten, Martes americana (Turton).

The marten, one of Michigan's finest fur bearers, occurred originally in some abundance, primarily in the more northern parts of the Lower Peninsula and the Upper Peninsula, in its preferred habitat, dense coniferous forests. It is an animal that is largely nocturnal and most at home in the trees. Included in its varied diet are squirrels, rabbits, small mammals, birds and their eggs, amphibians, reptiles, fish, insects, and even nuts and fruits.

There is little data available on early numbers or population density, but by the mid-twenties they were considered gone from the state, retreating before the ax and the trap.

A first attempt at re-establishment was made in 1956-57 when the Department released 29 in the Porcupine Mountains area of Ontonagon County. These were wild trapped in Ontario except for one pair purchased from a fur farm in British Columbia. By 1965 this introduction was termed a failure.

A second introduction was arranged by cooperative agreement with the U.S. Forest Service, which helped finance the project. A total of 99,

62 males and 37 females were purchased under contract from trappers who live-trapped them north of Thunder Bay, Ontario, where there was a population irruption. The martens were flown in by plane, ear-tagged and were all liberated about 10 miles north of the town of Rapid River in Delta County in the winters of 1968-69 and 1969-70. To protect them, 12 townships in Delta and Alger counties were closed to dry-land trapping for five years. In the first year following release, four martens were recovered, one of which was an untagged immature male, indicating some productivity. Several sightings of young martens were recorded also. Between early July, 1972, and late April, 1974, eight more observations were made at locations ranging from two to as many as 90 miles from the release sites.

The marten remains fully protected under Michigan law. Removal of the bounty on coyotes would help prevent losses due to incidental catches. The few martens which may still cling to survival should be protected under provisions of the Endangered Species Act.

3. Southern bog lemming, Synaptomys cooperi Baird

Michigan is in almost the exact center of the range of this small, short-tailed rodent in eastern North America. Although it has been observed in many parts of the state in times past, in recent years few records of this runway-making vole have been taken. Some mammalogists have considered that a reason for decline of the species is competition for habitat with the more abundant meadow vole (Microtus pennsylvanicus). It is possible that the bog lemming may have been much more abundant in pre-settlement days but has not thrived as a result of forest clearing, marsh drainage, and introduction of non-native grasses. All of these factors also may have favored the expansion of the range of the meadow vole. The bog lemming should be expected in moist, grassy situations in any part of the state. It is a species which needs to be very carefully monitored.

4. Pine vole, Microtus pinetorum (Le Conte).

The pine vole reaches the northwestern limits of its range in the Lower Peninsula of Michigan, being much more abundant in southeastern United States. It seems to prefer grassy situations at the margins of woodlands. The pine vole is generally less conspicuous than other Michigan voles since it seems to prefer living in underground burrows rather than using surface runways as do the meadow vole (Microtus pennsylvanicus) and the bog lemming (Synptomys cooperi). The pine vole is thought to be limited in numbers but widely distributed in southern Michigan. This is based on the paucity of recorded trap catches of this rodent in Michigan in recent years.

RARE OR SCARCE

1. Arctic shrew, Sorex arcticus Kerr

This large and handsome shrew occurs throughout the greater part of central and western Canada and Alaska, reaching the southeastern most limits of its range in Upper Peninsula Michigan. Even though habitat

for the species may be marginal in Michigan, this shrew has been collected in recent years in moist, grassy situations bordering boreal woodlands and swamps. We do not know whether arctic shrew populations are stable or declining. The species needs further study in our area. Certainly the preservation of moist, boreal areas are important in maintenance of this insectivore.

2. Water shrew, Sorex palustris Richardson

The water shrew occurs in the Upper Peninsula and the boreal sector of the upper part of the Lower Peninsula. Elsewhere it lives in the northern coniferous forest zones in southern Canada and northern United States. This shrew is the most aquatic of North American soricids. Its major distribution in upper Michigan is along water courses, especially small streams and swamp edges, where it forages for animal foods both along shorelines and in water. Traps set at the water's edge in such situations along streams of the Upper Peninsula have successfully captured this large, dark-backed shrew. As far as is known, this species is not threatened in Michigan; however, pollution of small streams by domestic or industrial wastes might affect its distribution profoundly.

3. Hoy's pigmy shrew, Microsorex hoyi (Baird) (Upper Peninsula).

4. Thompson's pigmy shrew, Microsorex thompsoni (Baird) (Lower Peninsula).

Shrews of the genus Microsorex are found throughout southern Canada and into Alaska in the north and south into parts of northern United States especially in the eastern part. We know little about the status of these tiny mammals in Michigan since very few have been discovered. Perhaps others have actually been found but not identified since the only sure way of distinguishing this genus from the masked shrew (Sorex cinereus) is by counting the number of teeth. In most parts of its range, the pigmy shrews have been observed in both open, grassy situations and in forested areas, either in dry or moist locations. Consequently, their habits seem to closely approximate those of the masked shrew. Whether competition with the more abundant masked shrew affects the populations of the pigmy shrews is unknown. We need more records of these diminutive mammals from the state in order to determine their status and distribution patterns.

5. Hoary bat, Lasiurus cinereus (Palisot de Beauvois).

The hoary bat, Michigan's largest and most attractive species, is a rarely seen summer resident. Part of its supposed scarcity results from its habit of hanging singly and inconspicuously among leaves in tall trees. On summer nights the hoary bat may be recognized by its large wingspread when darting for insects in the glare of street lights. We know little of its migratory habits and whether Michigan-reared individuals fly as far south in winter as the tropics. By placing it on the unofficial rare or scarce list we may encourage observers to record more about its status in Michigan.

6. Badger, Taxidea taxus (Schreber).

This fossorial carnivore probably did not become widespread in Michigan until clearing took place after settlement. Its range closely approximates that of the thirteen-lined ground squirrel (Citellus tridecemlineatus) in both the Upper and Lower Peninsulas. It is infrequently observed except as an occasional road kill. It is included on our list of rare or scarce species because while its status is uncertain it is now only rarely noted by field workers.

7. Canada lynx, Lynx canadensis Kerr

After being extirpated from Michigan in earlier days, the lynx made a nice comeback in Michigan's Upper Peninsula in the middle 1960's, presumably spreading southward naturally from Ontario. Since that time, specimens have been reported in several localities, mostly by outdoors persons and Department of Natural Resources biologists. Probably the lynx is now once again an established member of Michigan's mammalian fauna. Even so, its numbers should be watched carefully and its relationship to the more abundant bobcat needs to be studied.

PERIPHERAL

1. Eastern pipistrelle, Pipistrellus subflavus.

The eastern pipistrelle is a common cavity-dwelling bat in much of eastern United States. However, it has only been reported on one occasion in Michigan, in an abandoned mine tunnel in the Upper Peninsula. Very likely there is a resident population of these diminutive bats since harborage is available in much of the mining district in the Upper Peninsula. It is expected that this pipistrelle may be scarce or absent in other parts of Michigan.

2. Evening bat, Nycticeius humeralis (Rafinesque).

This small bat is a resident of southeastern North American, reaching the northern limit of its range in southern Michigan. In summer it may be found in such daytime retreats as tree holds, buildings, or even on tree bark. Probably it would be best observed foraging along streams in late evening. There is only one record of this small bat from Michigan; however, it should be watched for in summer in any of the southern counties as far north as Midland.

3. Gray fox, Urocyon cinereoargenteus (Schreber).

The gray fox reaches the northern edge of its range in Michigan. This southern species may have actively extended its range into our state only after the land clearing which took place after settlement. It is much less conspicuous than our common red fox (Vulpes fulva). Whether or not these two species are in competition, perhaps for food and home sites, with the gray fox being the less successful is unclear. Observations of this species should be recorded to determine if the resident population is on the decline.

4. Prairie vole, Microtus ochrogaster (Wagner).

The prairie vole may be slowly extending its range in grassy areas in southwestern Michigan, especially in the counties bordering Lake Michigan. Like the least shrew (Cryptotis parva) this vole is probably a newcomer to Michigan having moved in when clearing provided suitable habitat. The species occurs mostly in the plains section of the United States. Little is known of the interaction between the meadow vole (Microtus pennsylvanicus) and the prairie vole in Michigan, although in parts of the Great Plains where these two species occur in the same area, the prairie vole prefers dry grassy habitats and the meadow vole prefers moist ones. Its presence in Michigan should be carefully watched.

5. Moose, Alces alces (Linnaeus).

The upper part of the Lower Peninsula and the Upper Peninsula are a part of the ancestral range of the moose. However, this species was extirpated by man in the early days of settlement. In recent years, moose have in the Upper Peninsula presumably through periodic crossings of the St. Mary's River from Ontario. Observations of these magnificent animals are made each year, with records being kept by Department of Natural Resources biologists. No substantial population has yet developed. The species needs thorough protection in order to become firmly re-established as a part of Michigan fauna.

MICHIGAN ENDANGERED PLANTS

PTERIDOPHYTES

1. *Lycopodium* sp. nov. J. G. Bruce
No common name. A proposed new species of bog club-moss.
Lycopodiaceae. Club-moss family.
Very local in borrow pits near Lake Michigan.
Michigan counties: Van Buren.
2. *L. sitohense*
Sitka club-moss.
Lycopodiaceae. Club-moss family.
Highly local in borrow pits in Upper Peninsula.
Michigan counties: Chippewa.
3. *Phyllitis scolopendrium* var. *americanum*
Hart's-tongue fern.
Polypodiaceae. Fern family.
Highly localized, disjunct areas; rock ledges and crevices,
cool slopes, or sinkholes of dolomite or other calcareous
rock.
Michigan counties: Chippewa, Mackinac.
(on U. S. endangered list).
4. *Woodsia abbeae*
No common name.
Polypodiaceae. Fern family.
A small tufted fern.
Highly localized, western UP, rock crevices and ledges.
Michigan counties: Marquette, Ontonagon.
(on U. S. endangered list)

MONOCOTS

5. *Scirpus hallii*
No common name.
Cyperaceae. Sedge family.
A small annual bulrush with ridged seeds.
Highly localized, shores of one small lake.
Michigan counties: Muskegon.
6. *Polygonatum biflorum* var. *melleum*
Solomon's-seal. A rare variety.
Liliaceae. Lily family.
Herbaceous perennial. Small honey-yellow flowers.
Woods and open thickets. One locality -- the type locality of the variety.
Michigan counties: St. Clair.
7. *Isotria medeoloides*
Smaller whorled pogonia.
Orchidaceae. Orchid family.
Greenish-yellow flowers, small and lily-like.
Upland woods. One locality.
Michigan counties: Berrien.
(on U. S. endangered list)

DICOTS

8. *Arnica cordifolia* = *A. whitneyi*
Heart-leaved arnica.
Asteraceae. Composite family.
Small herbaceous perennial. Yellow daisy-like flowers.
Dry woods. Few localities, includes the type locality of
A. whitneyi.
Michigan counties: Keweenaw.
9. *Opuntia fragilis*
Fragile prickly-pear.
Cactaceae. Cactus family.
Low moundlike clumps. Segments plump rather than flat.
Dry rocky openings. One locality in Huron Mountains.
Michigan counties: Marquette.
10. *Baptisia leucophaea*
Cream wild indigo.
Fabaceae. Legume family.
Herbaceous perennial; stem and leaves hairy, blackening in
drying; flowers large, cream, pea-like.
Prairies and thin oak woods.
Michigan counties: Kalamazoo.
11. *Petalostemon purpureum*
Red prairie clover.
Fabaceae. Legume family.
Herbaceous perennial. Flowers small, rose-purple, clover-like.
Dry uplands. A prairie species.
Michigan counties: Van Buren.
12. *Castanea dentata*
American Chestnut.
Fagaceae. Beech family.
Upland forest tree.
Once common in southeastern Michigan. Now nearly eliminated
throughout its native range by chestnut blight. (Planted else-
where in Michigan).
13. *Gentiana saponaria*
Soapwort gentian.
Gentianaceae. Gentian family.
Herbaceous perennial. Blue tube-shaped flowers, more open than
the usual bottle gentian.
Moist sandy prairie or oak woods.
Michigan counties: Berrien.

14. *Nelumbo lutea* = *N. pentapetala*
 American lotus.
 Nymphaeaceae. Water-lily family.
 Aquatic perennial, emersed or floating umbrella-like leaves and large elevated, pale yellow flowers.
 Shallow water and muddy shores. Lake Erie marshes.
 Michigan counties: Monroe; (introduced elsewhere) formerly Wayne.
15. *Chamaerhodos nuttallii* var. *keweenawensis*
 No common name.
 Rosaceae. Rose family.
 Small, low herbaceous perennial, with cleft leaves and tiny white flowers.
 Gravelly bluffs. One locality
 Michigan counties: Keweenaw -- type locality of the variety.
16. *Chelone obliqua*
 Purple turtlehead.
 Scrophulariaceae. Figwort family.
 Herbaceous perennial. Purple snapdragon-like flowers.
 Wet woods and thickets. Probably now only one locality.
 Michigan counties: Washtenaw.



STATE OF IDAHO

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Testimony of

Lloyd E. Oldenburg, Game Research Supervisor

Idaho Department of Fish and Game

Before

The Senate Subcommittee on Resource Protection of the Committee

on Environment and Public Works

July 22, 1977

I am Lloyd Oldenburg, Game Research Supervisor of the Idaho Department of Fish and Game. I am here to present observations on our state's experience with the Endangered Species Act of 1973.

Idaho has to date only limited experience with the Endangered Species Act. We have three native species, the peregrine falcon, the Northern Rocky Mountain wolf, and the grizzly bear, and one introduced species, the whooping crane, which are currently classified as threatened or endangered.

The peregrine falcon is found in small numbers throughout the State and has been given complete protection for many years. An introduction this spring by the peregrine recovery team of three captive-raised chicks has shown encouraging results. These young birds were placed in prairie falcon nests, using the prairie falcons as foster parents. These foster parents readily accepted their adopted offspring, and all three peregrines have now fledged and are flying and hunting in the Snake River Canyon in the National Birds of Prey Natural Area.

The status of the Northern Rocky Mountain wolf in Idaho is unknown. A Spokane, Washington, taxidermist identified what was supposedly an all-white timber wolf, killed northeast of Murray, Idaho, in 1962. This is the first recorded kill in nearly thirty years, if in fact it was actually a wolf. The

Department of Fish and Game receives a scattering of wolf sighting reports, some from fairly reliable sources, annually. The absence, however, of any indicated kills since the 1930's, except the one mentioned, gives considerable doubt as to whether wolves actually exist within the boundaries of our state.

The grizzly bear, a species completely protected in Idaho since 1946, is found in small numbers in southern Idaho, adjacent to Yellowstone Park, and in two areas of the Panhandle National Forest in extreme northern Idaho. To our knowledge, the status of this species has remained unchanged for the past thirty years.

The introduction of whooping cranes at Grays Lake in southern Idaho is now in its third year. This program is being carried out by the Idaho Cooperative Wildlife Research Unit, and is funded by the U.S. Fish and Wildlife Service. Whooping crane eggs obtained from Canada and the Patuxent Wildlife Research Station are placed in sandhill crane nests using the sandhills as foster parents. Results have been very encouraging and it appears that a completely new population of these magnificent birds may become established.

The State of Idaho has not entered into a cooperative agreement with the Federal Government for any endangered species program to date, primarily because we could not meet the criteria of the Act. The Northern Rocky Mountain wolf had been classified by state statute as a predator. However, as of July 1, 1977, the Legislature removed the wolf from the predator list and gave authority to the Fish and Game Commission to classify this species in a different category. The Commission acted on this matter at their July 21, 1977, meeting. It is anticipated that we will request a cooperative agreement with the U.S. Fish and Wildlife Service for an endangered species program later this year.

In review of the overall endangered species concept, it appeared to us that all effort to date has been directed as hindsight. Only animals already in trouble as a species have received much attention. We request consideration be given to also devoting effort at gathering information on species for which we have a limited data base but reason to be concerned for their future. This would enable the implementation of management techniques which might keep certain species from becoming threatened or endangered. We offer as an example, in Idaho, the extensive single species research on mountain lion ten years ago as now being responsible for what we consider one of the leading management programs and healthiest lion populations in the country today. Efforts such as this on the mountain caribou, river otter, wolverine, bobcat, Canada lynx and others, undertaken now could perhaps avoid the difficult task of threatened or endangered species designation and subsequent, painful critical habitat delineation in the future.

In addition to preventing species from reaching the threatened or endangered level, it would also be less costly to do actual on-the-ground specific studies of various animals now than to go through the costly administrative procedure of classification as threatened or endangered and critical habitat designations later. These single species studies also provide extensive data on the food chain involved, seasonal habitat requirements, distribution and inter-specific relationships with other animal populations in occupied habitats. If a species is determined to be in trouble, most management requirement data are available as a result of these studies.

A procedure which has bothered us is the method by which species are selected for consideration as endangered or threatened. It is our contention that when any species is being considered for classification, the states in which that species

resides should have equal authority with the U.S. Fish and Wildlife Service in making recommendations to the Secretary of Interior on whether classification is necessary.

It is the apparent prerogative of the so-called protectionist organizations to petition the Department of Interior to consider any species for classification as threatened or endangered. We believe the states must have more voice in the designation of all resident species when these selections are originally made. The areas where these animals live are the logical places to collect data on which to base the determination of the status of the various species. The Endangered Species Act, Section 4, states in part, "the Secretary shall make determinations required by subsection (a) of this section on the basis of the best scientific and commercial data available to him. . ." Above all else it should be a requirement that decisions be based on facts, not on emotion.

Section 7 of the Act requires that all federal agencies shall carry out programs for the conservation of endangered species. Since Idaho is approximately two-thirds federally owned, there are few land management programs undertaken that do not involve the Federal Government one way or another. The Environmental Impact Statement on Operations of the National Wildlife Refuge System placed higher priority on endangered species than on those species for which the refuges were acquired. We questioned this action, but were informed that in order to meet the responsibilities under the Act, major emphasis had to be placed on endangered species. Again, we question this action.

There seems to be undue haste in classifying species and/or critical habitat once the wheels are in motion. A case in point is the grizzly bear. The testimony

and expertise of two well-qualified, multi-agency research teams, investigating the grizzly's status and habitat needs, apparently was given little consideration in the classification of grizzly bear as a threatened species. The process of critical habitat determination for the grizzly has apparently followed the same pattern to date. Input from state wildlife agencies appears to carry less weight in these determinations than testimony from less-informed but more vocal organizations and individuals.


We have posed questions through this Department and through our participation with the Interagency Grizzly Bear Study regarding the concept of critical habitat once it is delineated. What priorities are to be established regarding use of an area? At what point is the determination made that the population density of grizzly bear is optimum? Who makes this decision and on what criteria is the decision based? What effect would critical habitat have on fishing, hiking and hunting other species including so-called "look-alike" species? What direction will be taken if the whooping crane transplant at Grays Lake continues to be successful and the birds start using more areas in southern Idaho? Will all waterfowl hunting seasons be curtailed because a whooping crane may be in a general area? What if a grizzly bear is observed miles from any designated critical habitat, or a peregrine falcon takes up residence alongside an airport? What action might we expect? These are questions we cannot now answer, and maybe no one can at this time, but they are important issues and concerns to us and the residents of our state. We are not blaming the agency responsible, we believe the law is lacking in clarity and detail and the intent should be spelled out to eliminate this type of problem.

A proposal last year to classify the bald eagle as endangered simply to ease administrative problems seemed to us unwarranted, but is typical of the direction being taken. This can only lessen the attention, support and action on those species which are truly in need of help.

As a resource agency it is our responsibility to insure perpetuation and well-being of all wildlife. Species have become endangered due to man's activities, and it behooves us to correct and rectify the situation.

The Endangered Species Act may well be one of the more important conservation laws to be enacted, if managed realistically. Again, it could also turn out to be a green-eyed monster if emotions rather than biological facts dictate application.

The opportunity to present testimony to this Subcommittee on this important national issue is greatly appreciated.


Lloyd E. Oldenburg
Game Research Supervisor

Endangered Species Act Oversight Hearing
Statement

by the

Colorado Division of Wildlife

July 22, 1977

Subcommittee on Resource Protection
Senate Committee on Environment and Public Works

Mr. Chairman, members, I am Robert L. Evans, Assistant Director, Colorado Division of Wildlife, Department of Natural Resources, Denver, Colorado. Thank you for scheduling this hearing and giving Colorado and other states this opportunity to briefly comment on Public Law 93-205, The Endangered Species Act of 1973, and the administration of this very significant piece of legislation. We are in full agreement with the intent of the Act and have given it strong support in the development of our state wildlife programs and projects. We are generally pleased with the administration of the Act by the Department of the Interior, Fish and Wildlife Service. Director Greenwalt and his staff within the Fish and Wildlife Service are to be commended for their efforts in implementing the various and sometimes complex sections of the Act.

Colorado is seriously concerned over the distinct possibility of losing its current status as a qualified state with an "adequate and active" program for endangered and threatened species. Although we intend to try to maintain a program acceptable to the Secretary of Interior, the stringent conditions of Section 6 could cause Federal pre-emption of traditional state authority over resident wildlife and termination of our cooperative agreement. We recommend that Section 6 (c) of the Act be amended to give greater latitude to the states. Under the current law, should the Secretary designate one resident species as threatened or endangered which the state does not have adequate authority to

conserve and regulate, the entire conservation program would be determined to be inadequate. We feel this provision is overly restrictive, of little benefit to wildlife as well as to the Federal and State agencies involved and it is not in the best public interest. Therefore, we urge this Committee to endorse the amendment to Section 6 of the Act as proposed by the International Association of Game and Fish Agencies. Further, we ask you to recommend this amendment to the full Congress. This proposed amendment, prepared in cooperation with and in behalf of the individual states, is strongly supported by Colorado. It will do much toward improving relations between the Federal government and the states. Moreover, it will allow the states to further the purposes of the Act and assist a majority of those wildlife species which are in jeopardy within our states.

Another matter of concern to us is the funding of the grant-in-aid program. The delay between the passage of the Act, December 28, 1973, and the appropriation of Federal funds to implement the grant program in the states did little to further the cooperative effort that was expressed by Congress during development of the legislation. While Federal agencies were funded earlier, it was not until April of 1977 that monies become available to the states to carry out beneficial projects. We ask that this Committee remind the Congress of its responsibility as stated in the Act and to provide adequate and specific funding for grant assistance to the states. As the states enter into cooperative agreements and requests for assistance increase, the appropriations authorized must also be increased and made available.

While we can report that the Fish and Wildlife Service has been aggressive in carrying out most of its administrative duties and has been in close contact with our agency, we must also state that the Service has been slow in acting in some matters and needs to more fully involve the state wildlife agencies much earlier than it has in the various processes, such as the listing of species

or habitats. As one example, there was an untimely delay between submission of Colorado's application for a cooperative agreement in November of 1974 and the approval of our agreement on June 23, 1976. Listing of some species and habitats in the Federal Register has been accomplished without prior discussion with the state. Publication of a critical habitat proposal for the Whooping Crane during the first year of an experimental research project without consultation with us or other state wildlife agencies caused considerable conflict and efforts that could have been avoided if the Service had worked with us prior to official action. Although they have done a relatively good job, the Service must increase its efforts to maintain an even closer relationship with the Colorado Division of Wildlife and other wildlife agencies of the western states.

There are three additional areas of administration that need attention for improved program implementation, each involving the development of procedures, criteria and priorities. Although the Act sets forth some basic criteria for the listing of species and the designation of critical habitats and alludes to priorities for funding of projects, we feel much more could be accomplished. We suggest that the Service, in cooperation with the states, develop very specific and detailed sets of criteria which would be used, again in consultation and cooperation with the state wildlife agency, to: (1) consider listing and delisting of species, (2) propose designation of critical habitats for any species; and (3) establish priorities for funding the Federal programs and the cooperative grant programs. Proper use of these criteria would vastly improve coordination and discussion between the Federal agencies and the states and would thus lead to improved benefits for the wildlife species for which each of us is responsible.

I would like now to present a review of our experiences with the Endangered Species Act of 1973. I can say without fear of contradiction that because of this 1973 Act, Colorado will eventually achieve in the threatened and endangered

species areas a number of things that would not have been possible solely under state funding procedures. I am sure all of you are aware of the difficulties encountered when competing with schools, welfare, institutions, highways and other interests for a share of a state's general fund monies for nongame programs. Success comes inch by painful inch, for nongame species programs do not receive a very high priority ranking in the long list of state needs.

The realization of funding under provision of the Endangered Species Act of 1973 by Colorado means that it is now possible for my state to make significant progress in the nongame fields of threatened and endangered species. We are most appreciative of this source of funding without which our troubled species would face an unpredictable future of slow and painful progress. Our ability to stabilize and secure our threatened and endangered species would be questionable.

This year, Colorado received \$100,000 in Federal funds under the grant section of the Act, matched by \$50,000 in Colorado general fund monies. In addition, another \$117,600 in state general fund monies were made available to the Division to provide six full-time employees and a modest operating budget for nongame program efforts.

In response to this level of funding for nongame, threatened and endangered species programs and in order to achieve significant results, the Colorado Division of Wildlife, since the early 1970's, has explored additional means of raising money to supplement funding for these programs.

With the thought in mind that many people who do not fish or hunt would want to contribute money to the nongame program, we devised with legislative approval a \$5 Colorado Conservation Stamp depicting endangered species. The sales have ranged from a high of over 1,000 stamps in 1975 earning over \$5,000 to around 400 stamps last year bringing in about \$2,000. The total sold in the

four-year program is about 2,500 stamps, bring in about \$12,000. Discouraging is the fact that most of the stamps have been purchased by hunters and fishermen, not non-hunters and non-fishermen. In 1978, the cost of the stamp will be reduced to \$1.00. We estimate that although the number of stamps sold will double or even triple, revenue will not be substantially increased.

The money derived from the conservation stamps program has been spent for threatened and endangered species projects. The major expenditure was \$6,700 spent to restore a storm damaged island which is the only breeding site for white pelicans which are considered threatened in Colorado.

Also in 1973 we attempted to get the Colorado General Assembly to authorize a personalized automobile license plate. An extra fee of \$35 would have been charged, with most of this money going to the nongame program. However, the Colorado Attorney General ruled that diverting license plate revenues from the highway users fund was unconstitutional and this revenue source was lost.

In 1975 the Southland Corporation's Seven-Eleven stores assisted us by selling bicycle decals depicting a river otter for twenty-five cents each. This project brought in over \$4,000 in several months which is being spent to reintroduce the river otter, which is endangered under Colorado Wildlife Commission Regulation.

The Colorado Wildlife Federation has for a number of years contributed money to our nongame program. This money has been obtained by the sale of wildlife decanters, patches, and T-shirts resulting in a contribution of \$3,000 over the past several years.

Our most recent effort is a state income-tax check-off box. By a 1977 legislative action, Colorado citizens will be able to donate, starting in 1978, \$1.00, \$5.00 or \$10.00 from their state income tax refund, for support of Colorado's nongame, threatened and endangered species programs. It is estimated that about 700,000 people received a refund of some amount on their state income

tax payment last year. With proper and vigorous promotion of this revenue producing possibility, it is hoped that a substantial amount of money will be realized annually.

Let me turn now to a review of what is being done with the \$150,000 provided us by Federal funding under the Act and by state matching money. Let me start with what we consider to be our most successful, most advanced and most exciting project. It has to do with restoration to Colorado's wild of the peregrine falcon, a most beautiful, incredibly swift, hunting bird of prey. This magnificent bird is returning to our wild areas now, thanks to two cooperative programs.

As you may be aware, the American Peregrine Falcon is an endangered species which is now extinct as a breeding bird in the eastern United States and is in critically low numbers in the western portion of the nation. The recovery team for the Rocky Mountain region estimates that less than thirty pairs are known. While they have never been really abundant in Colorado, more than thirty sites historically were present but only five sites were occupied by pairs in 1976. After documenting this decline in reproduction of these falcons, we undertook an aggressive program to increase the fledging success. This program involves placement of captively produced peregrine into wild nests to increase poor reproduction. Colorado, New Mexico, Utah, and Idaho as well as the Fish and Wildlife Service, Forest Service, and Bureau of Land Management are cooperatively supporting a peregrine propagation program operated at the Division of Wildlife's research facility at Fort Collins, Colorado. The project is operated and administered by the Peregrine Fund, Inc. of Cornell University under supervision of Dr. Tom Cade. Dr. Cade and his associates are holding a number of pairs of peregrine falcons and breeding them in captivity. This spring the Peregrine Fund succeeded in producing more than 70 young in their facilities at Fort Collins and Cornell. Seventeen of the young were the endangered anatum subspecies with which we are dealing in the west.

The second program is the one between the Federal government and the Colorado Division of Wildlife. This peregrine falcon program can be divided into four sections; nesting performance, habitat analysis, reintroduction and production, and protection.

Nesting performance seeks to: (1) document the number of breeding pairs in Colorado, (2) discover new nesting sites, (3) monitor egg shell thinning and pesticide residues in eggs; and (4) analyze prey species for pesticide residues.

We are locating and visiting all nest sites of the peregrine falcon in Colorado which have been occupied within the past three years. They are observed from a distance to establish the presence of breeding adults and we will revisit all these sites periodically throughout the nesting season to document reproductive success.

Prior to, or immediately after the hatching of the eggs, nest sites are visited and egg shell fragments and addled eggs collected for pesticide analysis. Egg shells are measured for thickness according to standard methods and egg contents are shipped to the Fish and Wildlife Research Laboratory at Patuxent, Maryland for analysis.

Successful nests are visited prior to fledging of the young and the young birds are banded and colormarked. These sites are kept under surveillance to determine actual fledging success. Favorable habitats for potential nesting sites are surveyed from the ground and where necessary by helicopter in remote regions. When new pairs are located, they will be surveyed as I outlined. A total of \$18,650 is allocated to this part of the program.

The habitat analyses program is designed to establish physical and biological parameters of eyrie sites and to identify human activities which peregrine falcons will tolerate. Annually, a number of historic nesting areas and eight currently occupied peregrine eyrie sites in Colorado are visited and the following

physical aspects recorded: topography, geology, elevation, snow depth and precipitation, mean temperature, soil, presence and distance to water, and cliff characteristics. In addition, a series of photographs are taken of each site. Each year, new sites will be surveyed until all known sites have been studied.

The vegetative types of the habitat within a distance of 15 miles of nesting cliffs will be cataloged, appropriate Forest Service vegetative maps will be utilized, and meadows and other potential peregrine hunting territories will be located on maps.

Through use of standardized census techniques, avian prey diversity and abundance are to be calculated for the months of April, May, June and July. This will be done at at least two sites annually. Censuses are run once monthly in two localities for each habitat type represented. Human activities, land use practices and audio and visual disturbances are noted at each site and within an area of 15 miles. If breeding pairs are present, they are observed to note their reactions to potential disturbances. A total of \$15,300 has been allocated for this program.

The objectives of the reintroduction and production program are: (1) to induce production of several clutches of eggs by "double clutching," (2) to augment poor natural reproduction by placing produced young in nests; and (3) to release additional young to the wild by "hacking" captive produced young from abandoned eyrie sites.

Breeding pairs of peregrines are observed to determine dates of initiation of egg laying. Within a week to ten days after completion of the full clutch of eggs, the eyrie is visited and all the eggs removed and artificially incubated. Approximately two weeks after removal of the eggs, the pair will recycle and lay a second clutch. The second clutch may or may not be replaced with dummy eggs which the adults will be permitted to incubate. Dummy eggs are substituted in

situations where there may be concern about the adults' ability to incubate the eggs without breaking them. After a suitable period, if dummy eggs were substituted, the site is revisited and the dummy eggs replaced with chicks from the eggs which were incubated and hatched in captivity. If the adults were permitted to hatch their own eggs, they will be permitted to continue to rear and fledge them.

Captive produced young are released at unoccupied or potential sites without benefit of protection or care from adults through the technique of "hacking." Young falcons of three or four weeks of age are placed on a suitable ledge at a potential reintroduction cliff site. They are then cared for and fed by human attendants until they are flying and capable of feeding themselves. In this manner, the young falcons will return to the site at which they are reared and hopefully breed. This approach requires constant attendance and observation in order to protect the vulnerable young and insure they have sufficient food while they are in the eyrie. A total of \$6,800 has been allocated for this part of the program.

The protection program is designed to reduce human disturbances at specific eyrie sites and to protect eyries on private lands. Two observers are stationed at eyrie sites and they keep the falcons under constant surveillance from initiation of egg laying until after the young have fledged. The observer is situated in such a position that his presence will not disturb the falcons and yet he is capable of viewing the vicinity and note any intruders. This work, as well as efforts with other species, is coordinated with the Fish and Wildlife Service. When important feeding areas of peregrines are located on private lands, an effort is made to contact the landowner and negotiate to assure that the area remains suitable as a hunting area for peregrines. In general, the landowner is encouraged to continue to provide the habitat types preferred by key prey species, to continue to plant crops which support the

prey or to undertake other activities which continue to benefit the peregrine's prey. No funding request for this activity is included at this point since it is hoped that negotiations may be accomplished without disbursement of funds to the landowner. Total costs for the protection part of the program is \$12,600.

Other threatened and endangered species work in which Colorado is engaged under federal funding include the following projects.

Population and habitat monitoring of Colorado squawfish and the humpback chub is one of two aquatic programs. We wish to determine reproductive success, year-class abundance, and habitat characteristics. Trend zones averaging ten to twenty miles in length on the Colorado, Gunnison, White, and Yampa rivers have been established and population monitoring by seining and electrofishing will determine overall species composition, abundance of larval or juvenile endangered fishes and the presence of reproducing adults. Simultaneously, habitat characteristics including stream bed contours, discharge, man-induced modifications, and the presence of back water nursery areas will be mapped. A computerized program will quantify the extent of Colorado squawfish and humpback chub habitat in the trend zones. By estimating the success of these two species of quantified habitat, management guidelines can be determined to increase populations in other areas. A total of \$30,385 has been allocated to this program.

A greenback cutthroat trout program is designed to locate additional populations, reintroduce greenback trout into suitable historic habitats and monitor and protect known populations. Systematic stream surveys in the headwaters of the South Platte and Arkansas River drainages to collect specimens are being conducted. A list of potential inventory sites is being prepared after examination of topographic maps and fish stocking records, and interviews with knowledgeable persons. Qualified taxonomists are to be contracted to analyze the genetic purity of suspected greenback trout.

Sites for restoration of greenback trout will be chosen on the basis of known habitat requirements. Examination of maps, interviews with knowledgeable persons and habitat assessments in the field will be necessary. This year, \$19,500 has been allocated to the greenback trout recovery program.

A black-footed ferret program is one of inventory to verify ferret populations and identify sites for reintroductions. Based upon existing Division records, certain selected areas will be monitored throughout the year. Also, the distribution of prairie dogs will be mapped. Based upon existing knowledge of ferret habitat requirements, our lands will be analyzed and priority ranked for continued efforts to improve ferret populations. Night-time observations will be maintained on those sites which are considered to have ferret populations. Total cost this year of the black-footed ferret inventory is \$22,000.

The final wrap-up of this year's grant-in-aid money will be a Division publication to inform the public of the needs of threatened and endangered species of Colorado. This will be in the form of an illustrated booklet at a total cost of production of \$20,000.

Division personnel are assembling photos and preparing a suitable text for this full-color publication. Approximately 10,000 copies of the publication will be available to conservation organizations, education institutions, and interested individuals.

From this modest beginning under our cooperative arrangement with the Federal government, Colorado will be increasing its efforts in future years and developing additional programs for other threatened and endangered species.

Next year, we plan to develop and implement recovery programs for additional troubled species, including some classified as threatened or endangered by the Colorado Wildlife Commission under the authority granted by Colorado statute. To fund expanded and additional programs, we will be requesting approximately \$250,000, asking the Fish and Wildlife Service to increase the Federal contribution

by about \$67,000 and requesting our legislature to appropriate the necessary matching funds.

Again, may I express my appreciation to this subcommittee, and more specifically to each of you, for allowing me to review with you Colorado's recommendations as well as accomplishments in the threatened and endangered species fields, to reaffirm Colorado's confidence in The Endangered Species Act of 1973 and to enlist your support for an amendment to the Act as proposed by the International Association of Fish and Wildlife Agencies.

Statement of Steve Gallizioli, Chief of Research
of the Arizona Game and Fish Department

Mr. Chairman and members of the committee, I am Steve Gallizioli, Chief of Research and Endangered Species Coordinator, for the Arizona Game and Fish Department, the agency charged with the protection and management of the wildlife of Arizona.

I appreciate the opportunity to appear here as our Department's representative to discuss Arizona's experience with the Endangered Species Act of 1973. The Arizona Game and Fish Department can wholeheartedly support the purposes of this law, particularly its main objective: "...to provide a means whereby the ecosystems upon which the endangered species...depend may be conserved." For wildlife, protection of the ecosystem, or habitat, as it is more commonly known, is far and above all else in importance. Without habitat there can be no wildlife, and other measures designed to aid in restoring ailing populations of endangered species will be to no avail.

Arizona's efforts to protect, enhance and restore habitat for all wildlife species and programs directed specifically to endangered species antedate the Endangered Species Act of 1973 by many years. As background for my other remarks, I should like to quickly review some of the endangered species programs of the Arizona Game and Fish Department.

Long before passage of federal legislation, Arizona was pursuing biological investigations and restoration efforts for six species on the current federal endangered list: the Arizona trout, Gila topminnow, Yuma clapper rail, masked bobwhite, Mexican duck, and Sonoran pronghorn.

Attempts to restore the masked bobwhite to Arizona go back more than 40

years. Efforts were made on a number of occasions to re-establish the species in historic habitat with wild-trapped birds from Sonora, Mexico. This quail is recognized by all authorities as having been extirpated from Arizona, the only state where it occurred, by the extreme overgrazing by domestic livestock that prevailed in the late 1800's. The Department's restoration attempts failed, probably because overgrazing never ceased and the original habitat conditions were never re-established.

By the early 1960's, southwestern ornithologists feared the masked bobwhite was extinct even in Mexico. In 1964 a Department employee was a member of the three man team (the others were private citizens) that located what is still the only known viable population of masked bobwhite in Sonora. The locality where they were found subsequently became the principal study area for personnel of the FWS when a recovery program was instituted.

In 1967, the Department became the first state wildlife agency to hire a full time non-game biologist. One of his first assignments was to determine the abundance and distribution of the Yuma clapper rail, another endangered species. A significant portion of his time for the next several years was devoted to this task and resulted in a greatly improved knowledge of this species. He also helped develop an ingenious method for censusing clapper rails using tape-recorded rail vocalizations to induce the secretive birds to call.

The Mexican duck is another endangered bird that has received much attention by the Arizona Department of Game and Fish. In addition to biological investigations of numbers, distribution and reproductive success, Arizona has spent sizable sums on habitat acquisition and improvement. Just within the past year the Department has committed some \$250,000 to a program to create a

number of shallow impoundments to improve the habitat in the Mexican duck's historic range.

The Sonoran pronghorn, a subspecies of the more common antelope, has been the subject of numerous biological investigations by Arizona Game and Fish extending back some 30 years or more. These studies have led to a much better understanding of numbers, distribution and habitat conditions for this endangered species.

Among the endangered fish species found in Arizona, both the Gila topminnow and the Arizona trout were receiving a great deal of attention by our Department before passage of the 1973 Act. Both species were propagated in state fish hatcheries and had been reintroduced into native habitat. Unhappily, the red tape provisions of the Act have interfered and slowed the state's programs for these species.

As further evidence of the Arizona Game and Fish Department's concern for the welfare of all wildlife species, I feel I should mention other actions involving several strictly non-game species. As far back as 1958 Arizona placed the Gila monster, a large poisonous lizard, on the protected list, making it illegal to take, possess, sell or purchase the animal. In 1967, the commercialization of horned lizards and desert tortoises was prohibited. In 1969, the ridge-nosed, twin-spotted and green rock rattlesnakes were similarly protected. Finally in 1973, the chuckwalla, another large lizard, was added to the protected list.

My purpose in reviewing what the Arizona Game and Fish Department has done for endangered species is to establish the Department's credentials in the field of endangered species concern. The Department pursued such programs before passage of the 1973 Act and continues to do so today. In addition to various field projects we have Department representatives on line recovery

teams, which may well be some kind of a record, at least for western states. On four of the teams the Department representative acts as the team leader.

After this litany of accomplishments it may come as a surprise to learn that despite the obvious interest and concern for endangered species, the Arizona Game and Fish Department has made no effort to enter into a cooperative agreement with FSW under Section 6 of the 1973 Act.

Why the reluctance? Frankly, some of the initial resistance was probably due to the Act's pre-empting of traditional state authority over resident wildlife. For a time there was an attitude of "To hell with 'em! Since the feds obviously feel the states can't be trusted to do the job, let them handle it!" Nor was Arizona enthused with the inflexible criteria a state had to meet to qualify to enter into a cooperative agreement, particularly in view of the fact the Act provided little incentive to do so.

One of two inducements the Act holds out for states is the restoration of their authority to manage resident species; the other is the possibility of grant-in-aid monies. On close reading of the Act, however, it seems that the restoration of authority over resident species is more apparent than real. There is a qualifier that one seldom hears about. According to Sec. 6(g) (2) the restoration of management authority to states that have entered a cooperative agreement with the Secretary applies only to species "other than (those) listed In Appendix I of the Convention". Since virtually all endangered species are also on Appendix I, and further, since it seems that most other Appendix I species will soon be added to the endangered list, it is clear that the states that sign a cooperative agreement will not necessarily have management authority restored to them.

Most important of Arizona's reasons for refusing to enter into a cooperative agreement is the requirement in Section 6 that to qualify a state must have

authority over all resident endangered species. At the present time Arizona believes it does indeed have the necessary authority over those species now on the list resident to the state. Our Department's authority extends to all vertebrate species as well as to mollusks and crustaceans. At this time there are no listed species over which Arizona does not have authority. It is only a question of time, however, until an invertebrate for which the Department lacks authority is listed. Several species of butterflies resident to Arizona are currently under consideration by the FWS. The listing of any one of them would disqualify the state for participation in a cooperative program with the FWS. We do not think it prudent for the Department to staff up for programs under a cooperative agreement, using grant-in-aid funds now available, only to have to discontinue such projects when an insect is listed.

Since Arizona lacks authority for some species a logical question might be whether the state has attempted to get the necessary legislative authority. We have not. Further, our Department is most reluctant to do so for some very good reasons.

While there is considerable interest in endangered species on the part of the general public, that interest is largely confined to the vertebrates: birds, mammals, fishes, reptiles and amphibians. We believe the 1973 Act is overly idealistic in extending coverage to all members of the animal kingdom, including literally millions of invertebrates, many of which we regularly slap and step on without a thought. Many of these forms are still being classified and we know virtually nothing about the population status, distribution or biotic requirements of most. One scarcely needs clairvoyance to foresee that the lists of endangered and threatened species will inevitably attain astronomical lengths by the inclusion of invertebrates. Frankly, gentlemen, Arizona does not believe it could cope with such a Pandora's box. We are

convinced it will stretch our capability and financial resources to even deal with the vertebrate species alone. Involvement with the countless species of invertebrates that will eventually be listed would seem to be neither economically feasible nor politically practical.

We understand a bill will soon be introduced to amend the Act to permit states to qualify for cooperative agreements for those species over which they now have authority. Through the Western and International Associations of Fish and Wildlife Commissioners we have urged such an amendment for the past several years. We hope such a bill will soon become law, thus paving the way for many more states to engage in cooperative programs with the FWS. For Congress to refuse to pass such an amendment is to further delay accelerated recovery programs for the vertebrate species of the United States most in need of attention.

Notwithstanding our reservations about certain provisions of the 1973 Act, Arizona is convinced that this act can be the vehicle necessary to stop the alarmingly rapid rate of extinction of animal species. To be truly effective, however, it is absolutely imperative that Section 7, which prohibits destruction or modification of critical habitat by federal agencies, be preserved. We will concede that it may be necessary to make the provisions of this section somewhat more flexible than they now appear to be and have so been interpreted by the courts. However, considering that the bulk of endangered species in the United States are in precarious circumstances because of habitat limitations, it is clear that Section 7 is by far the most important element of this law. Any drastic modification of this section will emasculate the Endangered Species Act of 1973.

One concern of the Arizona Game and Fish Department has to do with the Appendices to the Convention on International Trade in Endangered Fauna and Flora. This is one of several international treaties implemented by the

the Endangered Species Act of 1973.

The Convention ostensibly addresses itself to the plight of species endangered by international trade. In reality it seems to make no distinction between species endangered by trade or endangered by any other factor. Or so it would seem to us on the basis of those species resident to Arizona that have been placed on either Appendix I or Appendix II. There is no shred of evidence that the Sonoran pronghorn, Mexican duck and masked bobwhite, all on Appendix I, or the Mearns quail and Arizona mountain lion, listed on Appendix II, ever featured in international trade. The latter two have been hunted regularly for many years and are neither endangered nor threatened by trade or anything else.

The placement of the Mearns quail on Appendix II is particularly disturbing. Our Department is now completing a nine year comprehensive study of this species at a cost to the state of some \$200,000. As a result of this study we know what the limiting factors are (overgrazing by livestock is the most critical). We have also demonstrated that hunting has no depressing effect on Mearns quail populations. There are normal year-to-year fluctuations but no downward trend in population levels. Nevertheless it is on Appendix II and we understand it is also under consideration for the threatened federal list. Attempts on the Department's part to learn how it came to be on this Appendix and recommendations to have it removed have been totally unsuccessful. Our most recent recommendations to remove the Mearns quail, mountain lion and other Arizona species from Appendix II at the next meeting of convention states in October, 1977 were submitted in a letter dated 12 May 1977 to Richard Parsons, FWS. The letter was acknowledged but the recommendations seem to have been ignored. At any rate they are not on the list of species which will be proposed for discussion at the next meeting of the Special Working Session of the Convention next October in Geneva, Switzerland. Apparently our delegation

refuses to consider the merits of Arizona's recommendations for delisting despite the absence of any evidence that (1) the species is in any way threatened with extinction (2) that it has ever entered into international trade.

In the interest of the cooperation which the 1973 Act calls for, and which federal administrators of the Act have repeatedly stressed is vital to fulfill the purposes of the Act, we would suggest that the opinion and recommendations of the several states in matters such as this not be so cavalierly dismissed.

Mr. Chairman, this concludes the testimony of the Arizona Game and Fish Department.

7/16/77

The Endangered Species Act and the Alligator in Florida

These comments mostly concern the management of one species, the American alligator, and do not address many of the broader questions of the Endangered Species Act.

The Florida Game and Fresh Water Fish Commission supports the Endangered Species Act wholeheartedly and does not want to see the law weakened. However, based on our experience with the American alligator, we do believe the administration of the law can be improved.

When it became apparent that alligator populations were at a level which warranted some lessening of restrictions, we petitioned the U. S. Fish and Wildlife Service to delist the alligator from endangered to threatened status. It was extremely important for the Game and Fresh Water Fish Commission to have the additional latitude provided by the threatened status to handle the alligator complaint program. In 1976 the Commission received 10,000 complaints concerning alligators.

After following the necessary procedures to delist the alligator, we were promised that delisting would be forthcoming in July 1976. Similar indications of eminent delisting were provided us by the Endangered Species Office several times during subsequent months. However, the actual delisting did not occur until January 1977, causing a delay in a planned management program. No reason for the six month delay was ever given.

We do anticipate asking for a further delisting of the alligator sometime in the future to a non-endangered status. This request will come as additional data are generated by our current research and that of other independent researchers. We would hope that when such a request is submitted with accompanying justifying

data that the Endangered Species Office will act as quickly as possible. We do not object to critical review of our data or our conclusions by qualified people. We do object, however, to bureaucratic inaction and excessive response to some of the more emotional and poorly informed segments of the conservation community by the Endangered Species Office.

We are very much dedicated to the conservation and management of the American alligator along with the multitude of other unique wildlife species in Florida. We feel we are a responsible wildlife management agency and look forward to an equal working relationship with the Endangered Species Office.

We cannot offer detailed recommendations concerning how this working relationship can be maintained. We can, however, make some general recommendations on how to improve the administration of the Act: (1) streamline the procedures to delist and/or list species and put strong emphasis on examining supporting data and less emphasis on objections by individuals or groups who have no data to support their position; (2) keep open lines of communications with the states who ultimately have the responsibility for conservation and management of resident endangered species; and (3) place just as much emphasis on recovery and eventual delisting of endangered species as the initial listing of an endangered species.

Tommy C. Hines
Wildlife Biologist
Florida Game and Fresh Water Fish Commission

STATEMENT BY
AUBREY J. WAGNER, CHAIRMAN, TENNESSEE VALLEY AUTHORITY
BEFORE THE
SENATE SUBCOMMITTEE ON RESOURCE PROTECTION
July 20, 1977

Thank you, Mr. Chairman. These hearings concerning the adequacy of the Endangered Species Act are of tremendous importance. In the broadest sense, the questions raised and examined here go to the heart of the critical quest for achieving a workable balance between the polarized extremes of unbridled growth on the one hand and a conscious attempt to severely limit or even roll back development on the other.

Sustaining a diversity of life on earth is essential to mankind's continued existence. With his amazing tools of technology, man has too often plundered and polluted with reckless abandon in his pursuit of greater production. As he utilized scientific knowledge to satisfy material needs, he overlooked or ignored the impact these actions were having on the environment.

With the advancement of the ecological sciences, man has obtained an increased awareness of the importance of all life forms, and of the value of preserving natural plant and animal systems. In this country, we have begun massive programs to clean up our land, air, and water resources, and to incorporate environmental concerns into the planning of our development programs. These are healthy changes--and we support them.

But it also is a fact that the pressures of a growing population, coupled with our deep and compelling belief in the basic right of all people to have adequate shelter, food and fiber, is going to require continued development as we strive to protect our natural resources. Unfortunately, in our desire to fix, we have "overfixed." In our rush to correct decades of environmental neglect, we as a Nation have tended to

place these basic needs of man well down on our list of environmental priorities.

The challenge, for today and for the future, is to find ways to provide man's needs without destroying in the process the natural resource base on which he depends.

Forty-four years ago, TVA was given the unique responsibility of dealing with all resources under a comprehensive, unified program. Under this concept, the air, the water, the land--and the plants and animals that grow above it and the minerals that underlie it--are recognized as being irrevocably interrelated. This idea of balance, this recognition of the interlocking nature not only of basic resources but of all living things, is the central issue at question today.

The key word is balance. When the Endangered Species Act was passed in December 1973, it was an attempt to add balance to a world where the scales had tipped in favor of economic growth and development to meet man's needs without regard to the loss of various species of fish, wildlife, and plants. In the words of the statute, such development had been "untempered by adequate concern and conservation." TVA accepted this statement at face value. We believed that section 7 of the act required Federal agencies to take reasonable measures, in consultation with the Secretary of the Interior, to conserve endangered or threatened species of fish and wildlife. However, we further believed that in the event of a conflict between a congressionally authorized project and an endangered species, the responsible Federal agency had the ultimate responsibility to determine what action should be taken to protect the species and whether a project should go forward. Our experience under the act, however, has been far different from our expectations; and, we believe, from the expectations of Congress in passing the act.

It is our belief that the Endangered Species Act, as interpreted by the Sixth Circuit Court of Appeals in the case of TVA's Tellico Dam and Reservoir project, is not predicated on balance. Indeed, balance is not permitted. And there is strong evidence that the act is being used by some not to protect endangered species, but to stop projects.

Tellico has become the prime illustration of the lack of flexibility that has been read into the act. Of perhaps greater importance, it serves as a clear warning of the threat to applying a balanced approach to wise resource management across the Nation. Let me summarize briefly the particulars of the Tellico case:

--Construction of the Tellico project began in 1967, after extensive debate both in the region and in the Congress. This was six years before the Endangered Species Act became law.

--The environmental aspects of the project were challenged under the National Environmental Policy Act in 1971, and after construction was halted for nearly two years, the courts determined that TVA's final environmental impact statement was fully adequate and in compliance with NEPA.

--Tellico was more than half completed when the Endangered Species Act was passed in 1973.

--The project was more than 80 percent completed when a suit was filed in February 1976 to enjoin its completion on the grounds that impoundment of the reservoir would destroy the critical habitat of the snail darter, a newly discovered three-inch fish which had not been listed as endangered until three months earlier. I might add that the snail darter is only 1 of 77 species of darters in Tennessee and of more than 116 species of darters in the United States.

--Today, the project is halted by injunction, although it stands virtually complete with more than \$105 million of the project's estimated \$116 million cost invested.

--It has been halted even though Congress, with full knowledge of the environmental consequences of the project and its effect on the snail darter, urged TVA in making the appropriation for the past two years to complete Tellico "as promptly as possible for energy supply and flood control in the public interest."

--It has been halted even though TVA has done everything possible to reconcile the continued existence of the snail darter with the completion of the project, including an apparently successful transplant of the snail darter to the Hiwassee River.

--After over a decade of construction and after Congress, with full knowledge of the Tellico project and its environmental effects, authorized TVA to spend over \$105 million in public funds to achieve the benefits of the project, there are still those who suggest that Congress should use the Endangered Species Act to require TVA to perform a new benefit-cost study to determine whether the project should be built. The project has been built and has been ready for use since January of this year. It takes no study to show that the vast benefits of this project exceed the remaining cost of about \$11 million. Nevertheless, some say that TVA should examine the suggested alternative of returning the river to its former state at an estimated cost of \$16 million and a net loss to the public of well over a hundred million dollars.

Something has gone awry. On a national level, the Sixth Circuit's decision means that once a determination has been made that a Federal project, or even a private project that receives Federal funds or a Federal permit, would adversely affect any endangered or threatened species or its critical habitat in any way, the project must automatically give way.

The 1973 act, rather than adding needed conservation goals to balance the preservation of endangered species with economic growth and development, has come full swing to prohibit that growth and development, regardless of the needs of man, the importance of the particular project, the importance of the species, the stage of completion or amount of public or private funds already invested in a project. The needs of endangered species must always prevail. The needs of man must always give way. The national impact of this decision could be disastrous.

The U.S. Fish and Wildlife Service recently estimated that there may be as many as one million species and subspecies of animals and plants in the world which they believe need protection. Since many plants and animals naturally have limited ranges, it is not inconceivable that virtually every river, stream, hillside, and field may contain an undescribed and possibly unique species or subspecies of life. Discovery may simply be a function of the scientific effort applied to the task. We believe that virtually any project in the United States can be stopped if its opponents are willing to look hard enough to find a new plant or animal in the area. And, unfortunately, under the Sixth Circuit's decision, it makes no difference whether the species is discovered and listed before the project is begun or is 99 percent complete.

Moreover, the Endangered Species Act makes no distinction for the relative importance of the species involved. The act affords basically the same unlimited protection for both endangered and threatened species, as well as subspecies. While recognizing that all forms have some scientific importance, the act makes no distinction between a snail darter and a bald eagle. It affords the same unlimited protection to all endangered species despite vast differences in their relative ecological, aesthetic, economic and social value.

TVA's difficulties with the Endangered Species Act are not limited, however, to our one experience in the Tellico case. Five other TVA projects have been impacted by the act. One is the Columbia Dam portion of the Duck River Project in middle Tennessee, which may very well be stopped under the Endangered Species Act because of its effect on one species of listed mussel and two species of snails which have been proposed for listing by the Department of the Interior. In fact, the Environmental Defense Fund has already notified us by letter of its intent to file suit under the act to halt the Duck River Project. Without going into the many benefits of the project, we are simply pointing out that present interpretation of the act does not allow us to weigh many important factors to reach a balanced decision.

Another TVA project which may be affected by the Endangered Species Act is our Hartsville Nuclear Plant, a \$2.5 billion power project on the Cumberland River in middle Tennessee. During a routine biological investigation of the river adjacent to the plant site, TVA biologists discovered 10 specimens of a mussel species which had previously been listed as endangered. Although this mussel has a fairly wide distribution in several other rivers, the project's potential effect on a few specimens in this one mussel bed may well require TVA to relocate the plant's cooling water diffuser system downstream at an estimated cost of \$2 million. We question the wisdom of spending \$2 million to protect a few specimens of mussels under these circumstances, and we are studying the biological and engineering problems in an effort to find a more reasonable solution.

These cases illustrate the basic problems we have with the present law. First, they show the potential impact which the act can have on the needs of people in this country, for it extends to any project, public or private, which is supported by Federal funds or requires Federal approval.

Today it is \$2 million and a federally owned power plant. Tomorrow it may be \$20 million and a private, state, or municipally owned facility that needs a Federal permit to operate.

In addition, the present act does not recognize and provide for conservation priorities. In a world where the total dollars available for endangered species are limited, what sense does it make to spend \$2 million to protect a few specimens of a widely distributed species of mussel from the possible effects of a diffuser pipe? Or to throw away more than \$105 million invested at Tellico where TVA has done everything possible to reestablish the snail darter in another river?

We believe that America's resources are too valuable and too scarce to allow this kind of waste. America's dollars can be better spent to achieve a much higher level of environmental protection. We believe balance and flexibility must be included in the Endangered Species Act so that not only the effects of a specific project or action on a species may be considered, but also the effect on national and regional goals. We question whether the automatic stopping of an ongoing project due solely to the presence of an endangered species is in the public interest, without adequate consideration of the effects of such action. Balance and flexibility are needed so that Federal agencies, in consultation with the Department of Interior and using stated statutory guidelines, can determine what actions should be taken to protect species and whether, when conflicts develop, the project or activity should be completed and used despite the effects on those species.

The guidelines necessary to make such a determination may be difficult, but are not impossible, to quantify. Certainly rare species should be

listed and protected, but the process should also include a procedure for not only identifying endangered forms but also characterizing their role and contribution to the environment. On the one hand, consideration should be given to the relative value of the species, including not only its scientific value, but also its ecological, economic, genetic, aesthetic, and social value. The diversity within a particular species, group, or family would also be important, as well as the creature's range and the numbers affected.

On the other hand, consideration should also be given to such factors as:

- the importance of the project or activity;
- its stage of completion;
- money invested at the time the affected species is listed and identified as endangered by the project or activity;
- possible modifications in the project or activity to protect the species;
- the extent to which the species will be affected;
- and whether action such as a transplant will tend to protect the species.

Today we stand at a critical crossroads. The ultimate application of the Endangered Species Act will be an important indicator of the direction we take. In its expression of concern for all forms of life, it can help raise our collective consciousness. It can be a vital tool as we seek to preserve our natural heritage while developing our resources to provide for man's needs. If left rigid and inflexible, however, it can effectively stop us dead in our tracks from realizing the fulfillment of those needs.

It is in pursuit of this sense of balance that TVA has worked to preserve the natural beauty and free-flowing utility of such rivers as the Obed, the Emory, the Buffalo, and the lower Hiwassee. It is in equal pursuit of this goal that we are working to harness the life-improving potential of the waters of the Little Tennessee and the Duck.

TVA has consistently held man and his legitimate needs in the forefront of our consideration and concern. Symbolic of that concern is the following letter I received in November 1964 from Mr. J. Guy Buckner, Superintendent of Lenoir City Schools, recognizing the need for Tellico before it was started. After citing the number of young people then enrolled in Lenoir City schools, Mr. Buckner wrote:

It has been my privilege to know the needs, the heartaches, and the ambitions of most of these young people. A large percentage of this year's 152 graduates of Lenoir City High School will attend colleges, universities, and technical schools. A great many of these will want to return to Lenoir City to live, but because of a lack of business enterprises, this will be impossible. This condition has existed during the 21 years that I have been here. According to the study made on Population and Economy, of Lenoir City, Loudon, and Loudon County, the population growth of Loudon County has not been as rapid in recent years as it has been in the past. This is due, not so much as decrease in births, but because of net out-migration of the productive age groups. Efforts to attract new industries and to expand existing industries need to be made to provide jobs in the county for county residents. I am greatly interested in the Little Tennessee River Project because of the possibility of industrial expansion needed to supply employment for these most outstanding young people in Loudon County.

We can argue from "now till Kingdom come" about the precise accuracy of projections for new jobs needed and created by water projects. In a broader arena, we can debate--as this Congress is now debating--the amount and sources of energy it will take to meet the needs of a growing population. But we cannot escape the irreversible trends those figures represent.

People, and their legitimate demands for food, clothing and shelter, are going to come. The alternative to planning today to meet those needs is to accept the inevitability of chaos tomorrow.

Mr. Chairman, for more than four decades TVA has labored to help bring a better way of life to all people in the Tennessee Valley. But our special concern remains focused on the "ill-housed, ill-clothed, ill-fed" still among us. It is especially the needs of this too often forgotten constituency that we continue to represent here today. They, too, are endangered. And if the poor are endangered, so are we all!

In times past, the alternative to meeting their needs at home was to shove them off on someone else, someplace else. We have worked long and hard to reverse the forced flight of Valley people from their region, and we are succeeding. Nearly a half century of massive outmigration--some 1-1/2 million people in the decades of the 1940's, 1950's, and 1960's--has been stopped. Young people growing up in the Valley today have a widening choice as to how and where they wish to live their lives. Inflexible, myopic measures, no matter how well-intended their purpose, should not be allowed to deny them that choice.

Let me emphasize again that TVA fully supports the basic philosophy behind the Endangered Species Act. Maintaining diversity of life is a very important element of the overall preservation of the human environment. But the total human environment also includes a warm home, a satisfied family, good food, rewarding employment, and many other necessities. We must seek to maintain a quality environment, while at the same time providing the needs of man. We need to preserve and protect our resources, even as we develop them. Conservation legislation, such

as the Endangered Species Act, must be given the balance and flexibility to permit us to achieve these objectives.

Mr. Chairman, thank you for your time and attention to this statement.

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STATEMENT OF JOHN WOFFORD, DEPUTY GENERAL COUNSEL,
U. S. DEPARTMENT OF TRANSPORTATION, BEFORE THE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE,
SUBCOMMITTEE ON RESOURCE PROTECTION, OVERSIGHT
HEARINGS ON THE ENDANGERED SPECIES ACT OF 1973,
FRIDAY, JULY 22, 1977.

Mr. Chairman and Members of the Committee:

I appreciate the opportunity to discuss with you the experience of the Department of Transportation under the Endangered Species Act of 1973, and specifically under section 7 of that Act. The Department of Transportation endorses the objectives of the 1973 Act. We recognize that the maintenance and preservation of a broad diversity of plant and animal species and the protection of those species which are endangered or threatened is an important national policy objective. Our success in protecting threatened and endangered species is important not only for its actual and potential scientific benefits, but also as a measure of our ability to preserve environmental values while meeting the Nation's economic, transportation and resource development needs.

For many years before enactment of the Endangered Species Act, agencies of the Department of Transportation, as well as State and local transportation authorities, have taken into account the

protection of endangered species. The Federal Highway Administration has altered the location of many highways to protect such species as the Red Cockaded Woodpecker, the American Peregrine Falcon, and of course the Southern Bald Eagle. The Federal Aviation Administration in 1972 undertook to relocate a community of Hawaiian Stilts that might have been destroyed by the construction of a new runway at the Honolulu Airport and took similar steps to preserve the stilt in conjunction with an airport project on the Island of Maui. The Coast Guard has always been slow to remove Osprey nests built on its buoys to allow the young to hatch and mature sufficiently to leave the nests. Let me give you two illustrations of how we have attempted to implement the Act.

EVERGLADES JETPORT, FLORIDA EVERGLADES KITE

The Department of Transportation, working with the local airport authority and State officials, began studies in 1970 to find a replacement site for the highly controversial Everglades Jetport in south Florida. Because of the environmental sensitivity of the area, the Department of the Interior participated fully in the studies. Because of the lead time needed to plan the siting of a major airport and because of the complexity and sensitivity of the environmental and community factors involved, it has taken seven years of planning

and environmental analysis to bring the proposal up to the point of completing a final environmental impact statement on the recommended site (Site 14). One alternative site was rejected in 1971 because the area was inhabited by the endangered Florida Everglade Kite.

Since the time of the rejection of this site and the tentative selection of Site 14 for final analysis, however, the kite has migrated into an area adjacent to Site 14. Given this migration, the U.S. Fish and Wildlife Service in December 1976 proposed the area adjacent to Site 14 as critical habitat for the Kite. The Fish and Wildlife Service informed the Department of Transportation in June 1977, during the consultation process, that a likelihood exists that an airport at Site 14 may jeopardize the continued existence of the Kite and may adversely modify its critical habitat. Further planning and environmental work on the project has stopped, pending resolution of the endangered species problem.

This is a situation in which airport site selection, including extensive participation by the Department of the Interior and expenditure of well over \$1,000,000 for studies and environmental monitoring, was in its final stage when it became known that the nomadic Florida Everglade Kite had moved into the area.

I-10 MISSISSIPPI SANDHILL CRANE

In the second case, Interstate 10 in Mississippi, highway officials also attempted to take endangered species into account. The Federal Highway Administration and the Mississippi State Highway Department consulted extensively with conservation officials, who gave some indication that the Mississippi Sandhill Crane would not be seriously harmed by the physical construction of I-10, after the highway had been relocated about 600 feet to accommodate the birds. Some years later, as the highway was about to go to construction, the National Wildlife Federation objected to construction of a particular interchange that would increase the potential for the development of the privately owned land that the Sandhill Cranes inhabit. Litigation ensued, and construction of the interchange has been enjoined pending satisfaction of the Interior Department's concerns. The State is now seeking Federal aid in acquiring more land for a refuge for the Cranes.

The Federal Highway Administration has recommended that Mississippi consider deleting the Interchange. This would enable FHWA and the State to comply with the Fifth Circuit Injunction and get the highway built. The local county government strongly supports the interchange, however, and the Governor on July 6

appealed to provide Federal assistance. The matter thus remains unresolved.

Aside from these specific cases which demonstrate some of the problems we have encountered in carrying out the Act's concern for endangered species, let me note four points we feel are important:

1. Balancing With Other National Interests. Section 7 of the Act, gives the Department of the Interior or the Department of Commerce significant influence over projects of other agencies. If it is the biological opinion of those agencies that critical habitats of a species would be modified or that the species will be further jeopardized by a project, any other Federal department or agency is in no position to challenge the analysis and is consequently obliged under the Act to modify its proposed action in order to avoid this impact. In cases where conflicts cannot be resolved through the consultation process the Administration believes that case by case Congressional review is the appropriate solution to conflicting legal mandates.

2. Authority to Implement Mitigation Measures. The Act (section 2c) notes that Federal departments and agencies "shall utilize their authorities in furtherance of the purposes of this Act",

but the Act does not provide any specific authority to agencies other than Interior. This has been interpreted to mean that an agency whose programs or projects are responsible for impacts on endangered species or critical habitat is also responsible for complying with Section 7.

The Department of Transportation agrees that the adverse effects of its programs and projects on environmental and community values should be mitigated and that the cost of mitigation of these impacts should be considered a normal project cost and shared by the project's sponsors (Federal, state, and local). However, existing authorities do not permit us to expend funds for certain types of mitigation measures which may be necessary. For example, in the Mississippi I-10 case, we do not believe that we have authority to purchase land within the critical habitat of a species for the purpose of converting it into a refuge, as Interior has recommended. Thus there is a serious hiatus on this project, and a similar situation could arise in other cases.

3. Coordination With Processes Under the National Environmental Policy Act.

The Department of Transportation, like other agencies, has established procedures for implementation of the National Environmental Policy Act (NEPA). These procedures require early consultation with agencies (Federal, state, and local) having jurisdiction or expertise

involving environmental impacts likely to be associated with our projects and proposals. The NEPA process calls for early consultation; preparation of a draft environmental impact statement; circulation of the draft to interested agencies and parties; response to comments received from those agencies; and preparation of a final environmental impact statement.

We view the environmental impact statement as the single document which should reflect all major environmental concerns about a proposal, consultation with appropriate agencies on these concerns, and appropriate commitments to mitigate any adverse impacts. Given this procedure, which is well established and understood by Federal agencies, as well as state and local governments, we believe it is essential to the effective and efficient processing of proposals that the consultation requirements under section 7 of the Endangered Species Act be incorporated as far as possible into established procedures for preparation and review of environmental impact statements.

4. Relationship to Transportation Planning.

We are now trying to undertake the consultations required under section 7 during the early stages of project development, and we are generally able to resolve problems at that stage. Indeed,

such early identification of and consultation about endangered species is extremely valuable. Obviously, the later such issues come to light, the more problems we have, given the long lead time to plan, design, and construct a major transportation project.

In conclusion, let me state that the Department of Transportation has a firm desire to see the Act implemented promptly, efficiently, and effectively. Protection of endangered species is important, and we are doing our best to comply with both the letter and the spirit of the Act.

I appreciate the opportunity to have made this statement, and will be happy to respond to any questions which the Subcommittee might have.

STATEMENT OF
REBECCA HANMER
BEFORE THE
SUBCOMMITTEE ON RESOURCE PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
JULY 22, 1977

MR. CHAIRMAN and members of the Subcommittee, I am Rebecca Hanmer, Director of EPA's Office of Federal Activities. I am pleased to be here today to be able to discuss with you some of the Environmental Protection Agency's experience to date with the Endangered Species Act (ESA) and in particular Section 7 of that Act.

As you know, passage of the Endangered Species Act in 1973 resulted from increasing awareness of and concern for our national heritage of fauna and flora in danger of eradication through thoughtless and destructive activities. Congress recognized that the Federal Government had a positive role to play and so directed Federal agencies in Section 7 to include in their activities the goal of protecting species in danger of extinction. This goal is compatible with EPA's responsibilities for prevention and abatement of environmental degradation.

An example of this supportive relationship is the positive contribution that cleaning up our nation's waters has had on animal populations. Rivers and lakes that were formerly detrimental to animal life are now habitable. Sturgeon

populations in the Hudson River have been enhanced as a result of cleaner water. An aggressive campaign of water clean-up along the Mississippi River in the vicinity of Minneapolis has also resulted in enhanced populations of the Higgins Eye Pearly Mussel which was previously presumed to be extinct.

Section 7 consists of two charges to Federal agencies. The first charge is for Federal agencies to utilize their authorities to further the purposes of the Act. The second is to ensure that their actions do not jeopardize the continued existence of endangered or threatened species or modify their habitat. In responding to these charges, EPA has introduced Endangered Species considerations into its program requirements, regulations and policies. We have attempted to administer Endangered Species requirements as part of our overall procedures to implement the National Environmental Policy Act, to the extent possible.

In EPA's wastewater treatment construction grants program, our NEPA regulations (40 CFR Part 6.510(c)) include the criterion that an environmental impact statement (EIS) will be prepared when "any major part of the treatment works will be located on or significantly affect the habitat of species listed on the Department of Interior (DOI) and Department of Commerce (DOC) threatened and endangered species list." Our research and development programs and

activities and our solid waste management activities also use the criterion of "encroachment of wildlife habitat, especially when threatened or endangered species may be affected", to determine if an EIS should be prepared.

The criteria for issuing new source National Pollutant Discharge Elimination System permits under the Federal Water Pollution Control Act also include the requirement that if "any major part of the new source will have a significant adverse effect on the habitat of threatened or endangered species (40 CFR 6.910(b)(3)), " an EIS must be prepared. The EIS, then, serves as the principal vehicle for identifying and analyzing impacts on endangered species, and for developing measures to avoid adverse effects.

The EPA regulations (40 CFR 162.111) enforcing the Federal Insecticide, Fungicide and Rodenticide Act include that hazard to wildlife, specifically members of endangered species, is a criterion for issuance of a rebuttable presumption against registration.

EPA's guidelines for discharge of dredge or fill material pursuant to Section 404(b) of the FWPCA state that "no discharge will be allowed that will jeopardize the continued existence or modify the habitat of a listed species (40 CFR Part 230.5(b)(6))." With regard to water quality standards which are set by the States pursuant to 40 CFR 130.17, EPA and Interior have a memorandum of understanding which encourages the Fish and Wildlife Service (FWS) to work with

the States and EPA in integrating fish and wildlife considerations into these standards.

In addition to the programs mentioned above, the development of area-wide water quality plans includes Endangered Species considerations.

EPA's regional offices were canvassed to determine the impact of the section 7 structures on EPA operating programs. The response was that there have been essentially no irresolvable cases involving endangered species and EPA programs and activities. With regard to construction grant projects and new source NPDES permits which involve the preparation of EIS's, EPA routinely contacts FWS or National Marine Fisheries Service (NMFS) by telephone and asks whether there is any indication that threatened and and endangered species are at issue. Generally, this informal consultation results in a finding of no major impact.

Promulgation of Section 7 regulations will require a more formal consultation mechanism in place of the present informal modus operandi of telephone consultation. We will continue to work closely with FWS and NMFS to implement the ESA and to meet our responsibilities under Section 7 of the ESA.

That concludes my prepared remarks, Mr. Chairman; I will be happy to answer any questions you may have.

ENDANGERED SPECIES ACT OVERSIGHT

THURSDAY, JULY 28, 1977

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON RESOURCE PROTECTION,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to recess, in room 4200, Dirksen Senate Office Building, Hon. Malcolm Wallop presiding.

Present: Senator Wallop.

Senator WALLOP. I want to wish you all a pleasant good morning. I think the last 3 days in Washington are about the most civilized days since I have been here. In fact, I think it is a pipedream I brought back with me from Wyoming. I can't believe the nice cool nights.

We have a time constraint, part of which has been laid on by my being late and the fact that other members of the committee couldn't be here. I had a committee meeting downstairs.

What I hope to do is not in any way to put such a constraint on you that you can't get across the points you are trying to make, but I would hope you can condense as much as possible the statements you have to make so both rather large groups can be heard this morning. Your testimony will be taken in full in the record if you submit it. If you can summarize it and move it along, I would very much appreciate it. I am sure those coming after would, too. We will try to get it done the best way we can this morning.

The first panel is a conservation panel: Mr. William Chandler, director of legislation, The Nature Conservancy; Ms. Anne Wickham, conservation director, Friends of the Earth; Dr. Michael Berger, assistant conservation director, National Wildlife Federation; Mr. Daniel Poole, president, Wildlife Management Institute; Mrs. Christine Stevens, secretary, Society for Animal Protective Legislation; Dr. Thomas Lovejoy, program director, World Wildlife Fund; Dr. Michael Zagata, Washington representative, National Audubon Society; and Mr. Michael Bean, author, "The Evolution of National Wildlife Law."

We will go with Mr. Chandler first.

STATEMENTS OF WILLIAM CHANDLER, DIRECTOR OF LEGISLATION, THE NATURE CONSERVANCY; ANNE WICKHAM, CONSERVATION DIRECTOR, FRIENDS OF THE EARTH; MICHAEL BERGER, ASSISTANT CONSERVATION DIRECTOR, NATIONAL WILDLIFE FEDERATION; DANIEL POOLE, PRESIDENT, WILDLIFE MANAGEMENT INSTITUTE; CHRISTINE STEVENS, SECRETARY, SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION; THOMAS LOVEJOY, PROGRAM DIRECTOR, WORLD WILDLIFE FUND; MICHAEL ZAGATA, WASHINGTON REPRESENTATIVE, NATIONAL AUDUBON SOCIETY; AND MICHAEL BEAN, AUTHOR

Mr. CHANDLER. Thank you. I am William Chandler. I represent the Nature Conservancy which supports the goals and programs of the Endangered Species Act.

Although it has taken considerable time to get the act functioning properly and there are still problems to be solved with it, the Conservancy believes the act is basically conceptually sound and it should not be amended at this time, particularly section 7.

Today I would like to address two points related to the act's purposes and implementation. One is the need to intensify and improve our efforts to protect America's natural ecological diversity which is being increasingly diminished and threatened by the homogenizing forces of man's landscape altering activities all across the Nation.

Natural lands are being converted to more intensive uses in this country at the rate of 1.25 million acres per year. That is an area the size of the State of Delaware.

The conservancy believes that the maintenance of natural diversity should be the primary goal of a prudent biological resources management strategy.

The second point I will make today is that the job of protecting most species and other elements of diversity is doable, and can be done without jeopardizing the Nation's overall economic development.

The question, Mr. Chairman, is often raised about the value of species in this country. What does it really matter if our last relic prairies are plowed under forever, if the peregrine falcon disappears, or if the desert fishes of the Southwest are exterminated forever? I think these questions can be succinctly answered.

Foremost among these answers is the fact that the preservation of genetic resources, represented by millions of plant and animal species on this Earth, provides our Nation with a reservoir of diverse resource options for the future.

Each species, we must remember, is a unique biochemical factory which probably contains substances and capabilities found in no other species. To a great extent our civilization is underpinned by past scientific discoveries that enable us to use plant and animal species for food, structural materials, fiber, and chemicals for industry and medicine. From wild grasses, for example, have come wheat, oats, barley, and corn.

Equally important, each of these species plays a unique ecological role in the exceedingly complex hierarchy of interlocking ecological

systems which we have only begun to understand. Hence, prudence dictates that we follow the advice of Aldo Leopold who cautioned that the first prerequisite of intelligent tinkering is to save every cog and wheel. The United States is not so poor a Nation that we cannot fail to heed his advice.

Mr. Chairman, questions have also been raised about the feasibility of achieving the goals of the Endangered Species Act. Is it really possible to preserve all the species which comprise America's ecological diversity, or have we in fact bit off more than we can chew?

Contrary to the implications and assertions of some witnesses which have appeared before this committee, the Nature Conservancy believes that the job is accomplishable, and that it can be done without creating social and economic hardships. If we agree that the maintenance of natural diversity is desirable, the issue then becomes how to preserve that diversity in the most cost-effective way possible.

Since its creation in 1951, the conservancy's principal purpose has been to identify and preserve ecological diversity in the United States. In 1976, for example, we helped preserve habitats of 70 nationally and locally endangered species.

Over the years, we have realized that the most effective strategy for diversity preservation is to preserve the best examples of each of the elements of natural diversity. To locate these examples, and to determine their status and viability for protection, we have made two simplifying assumptions.

The first is that if we classify the landscape into plant and aquatic community types, the preservation of one or more examples of each type will capture most of the thousands of species about which we know little or nothing. It will also capture most of the common animal species which are associated with these plant and aquatic communities. This, I submit, is the way to deal with the specter of the thousands of species that people have cited before this committee as being impossible to take care of. We don't have to find them all, study them, and list them. We can preserve them by preserving ecosystem types.

Second, all of the more visible rare, endangered and threatened species of mammals, amphibians, reptiles, birds, fish, and higher plants can be preserved by locating their habitats on the landscape and protecting a sufficient amount of habitat to assure their preservation. This is the basic objective of the Endangered Species Act.

The biggest problem, which many witnesses have already cited before this committee, that is hampering the implementation of the Endangered Species Act and natural diversity preservation is the lack of sufficient information to ascertain the relative status of the various species and plant communities, and the relative significance of various lands to their perpetuation.

In recent years the Nature Conservancy has attacked this problem in conjunction with State governments by helping them to create biological data management systems at the State level. These programs are now operational in nine States and the power distribution area of the Tennessee Valley Authority. Many other States have expressed an interest in creating similar systems.

How do these systems operate? First, the State's elements of diversity are classified into plant community types, aquatic types, animal species, plant species, and other ecological phenomena.

Second, a continuous inventory process searches known information sources to gather data on the location of each of the elements and to store this on maps, on computers, and in a system of manual files.

As an example of the type of mapwork that is being done in these State programs, Mr. Chairman, I would like to show you this map. We have a complete set of USGS quad maps for all the States in which these programs are operating where we actually plot the individual location of plants, animals, and plant community types.

As the data banks mature, and as priority land areas are identified, the States and the conservancy develop balanced techniques using a variety of protection tools. Mr. Chairman, I would like to point out at this time that each of these State data banks contains information on a much larger number of species than the 298 listed or proposed for listing on the Federal list.

The Tennessee program is gathering information on 563 species; Ohio, 746; North Carolina, 602; Oregon, 823. This shows that the States are interested and capable of running effective, comprehensive, biological data management systems and that they voluntarily show an interest in identifying and protecting a much greater array of their natural diversity than just federally listed species.

I would also like to point out some examples of how this data is being used to comply with State and Federal environmental laws, to improve conservation management, and to improve the EIS process of NEPA.

The State of Tennessee, for example, is using its data bank to screen all rural development projects in the State of Tennessee for environmental impact.

Mississippi recently passed a strip mining law which requires the identification of important natural systems and ecologically sensitive areas and has directed the State data bank to help identify these so strip mining cannot occur on them.

The Fish and Wildlife Service has consulted several State data banks for location of historic and active peregrine falcon nesting sites in conjunction with their restocking efforts.

In North Carolina, the highway department modified a highway corridor after learning it would adversely impact the habitat of eight threatened and endangered species about which they had no knowledge prior to being consulted by the data bank people.

Finally, in South Carolina, a private electric power company is designing its powerline corridors using inventory data in the South Carolina data bank. One important biological site has already been preserved from destruction.

Mr. Chairman, the net effect of all these data uses is the efficient maintenance of natural diversity without unnecessary conflicts, provided that this information bank is consulted and heeded early in the development planning process.

Heretofore, we maintain, the impact of development projects on a State's natural diversity has been ignored largely due to the undervaluing of biological resources and the lack of good information provided in a timely fashion. Randomly occurring development will continue to place even more species on the endangered species list as long as we fail to collect, organize and utilize biological data in a timely fashion.

In conclusion, the conservancy strongly endorses the Endangered Species Act and recommends section 7 not be amended. We will continue working through our State natural heritage programs and land acquisition activities to preserve the full array of America's natural diversity in support of the Endangered Species Act on a much broader front.

Furthermore, we encourage the Congress and the Carter administration to effectively address the problem of genetic resource destruction in this country and to further the preservation of all the species, plant communities and ecosystems of America.

I would like to provide the committee with copies of a report that the Nature Conservancy prepared for the Department of the Interior 2 years ago on the overall problem of preserving natural diversity in the United States.

Thank you. (Prepared statement appears at p. 576.)

Senator WALLOP. Thank you, Mr. Chandler.

Miss Wickham.

Again, I would encourage you in every way to summarize so we can get through. I hope the whole panel of both groups can be heard.

STATEMENT OF ANNE WICKHAM

Ms. WICKHAM. I am Anne Wickham, conservation director of Friends of the Earth, an international environmental lobbying organization of 29,000 members in the United States and additional members in sister organizations in 12 foreign nations.

Today I am also representing the Sierra Club, an international environmental lobbying organization of 175,000 members in the United States, and the American Rivers Conservation Council, a nationally active organization of 1,500 members dedicated to the preservation of America's heritage of free-flowing rivers.

Accompanying me is Prof. Zygmunt Plater, who has undertaken extensive study and major academic research on the Endangered Species Act and its legislative history.

Professor Plater, in association with the Department of the Interior and research assistant Deborah Labelle and Mardi Hatcher, has just completed extensive study of the administrative files pertaining to the Endangered Species Act of 1973.

We and all the major national conservation groups with whom we have worked on this issue over the past 5 years stand in strong support of the principles and procedures of the Endangered Species Act of 1973. Rarely does one issue attract such unanimity of support in a conservation community made up of diverse and sometimes conflicting elements.

This issue exhibits that unanimity and that agreement emphasizes both the importance of the concept of protecting our endangered heritage of ecological diversity and the wisdom of Congress in passing the comprehensive 1973 statute by wide margins.

Our statement today makes comments in two areas: the act in general and the current review of the Tellico case in particular.

The Endangered Species Act has as its main virtue the fact that it is a comprehensive attempt to answer the threat of loss of our

natural heritage of diversity. Its listing provisions are careful procedures for establishing the best practical information, subject to continual state-of-the-art updating, so that conservation efforts will have a sufficient data base.

Its enforcement procedures, in restricting private killing of endangered species, marketing of endangered species, and Federal actions potentially threatening species and their habitats—these principles and procedures all appear to be as workable as they are desirable, and with the growth of knowledge about the act and its procedures, citizen and agency implementation of the act can be expected to improve further.

We wish to address some of the questions raised by the initial outcry when the act was applied in court to obtain review of Federal projects threatening several species and habitat.

The major argument was that the act required amendment to add reasonable flexibility. Proponents of endangered species protection have understandably been concerned about the flexibility problem, since if the act is too rigid in its operation, its lack of balance will discredit both its supporters and the legislative policy itself, threatening the legislation's survival.

The inflexibility argument does not stand up to scrutiny, however. When reduced to its basis, it asserts that the act should be amended because it is doing what it was intended to do.

A review of present and prospective implementation of the Endangered Species Act indicates that the inflexibility argument is not supported by the facts; nor is it procedurally evident. If ever amendments to the act are to be considered by supporters of endangered species conservation, it should be on future evidence of statutory intractability, that does not presently appear to exist.

In assessing the act, it is useful to remember similar arguments made against the statutory language of NEPA and the Parklands sections of the highway acts in the early 1970's. As in those cases, by waiting to see if any of the dire consequences predicted actually occur, Congress can avoid precipitous action not required by the circumstances. By focusing on the existing flexibility and balancing procedures in the act, conservation interests can make a strong practical case for protecting the act against piecemeal erosion by incremental amendments to its text.

TVA and other opponents of the act argue that the judicial interpretation given the act in the Tellico and the sandhill crane cases demonstrates its inflexibility.

The judicial opinions demonstrate, however, that the court system is the only governmental arena which does not have discretionary flexibility under the act. The courts should not be pulled into the highly politicized role of balancing all the complexities of biological science and congressional policy. That responsibility, the courts indicated, does properly exist in the agencies which implement the congressional mandate and, as a last resort, in Congress.

Beyond the courtroom, however, there has been a consistent and impressive course of administrative flexibility in the practical operation of the Endangered Species Act. Though not generally recognized,

the past 4 years have seen more than 4,500 agency consultations with the Fish and Wildlife Service concerning potential project conflicts with the act. According to the Service's recently prepared report, most of these cases were handled informally, with formal documentation commenced in over 200 cases.

In fact, given good faith agency consultations, there does not appear to have been any case so far in which the public development project objectives could not be reconciled with conservation of the species.

Ultimately, of course, cases may arise where the national interest requires that a project be completed and a species be lost. Since cases will be increasingly rare, as shown by past administrative experience, by preplanning on future projects, by the diminishing number of water resource projects, et cetera. Even the addition of endangered plants to the list should not significantly change this, as most of the plants in low altitude areas have already been destroyed. The majority of surviving species in both Hawaii and California, where most of the listings are from, are found at altitudes of 3,000 feet or higher, not the coastal lowland.

If, however, such irreconcilable conflicts exist, it is altogether consistent with the act that specific project exemptions be considered and passed, with as much mitigation as possible. Congress is not likely, as a forum of last resort, to see a flood of cases. If the Tellico Dam case is given vigorous review, then running to Congress with every little problem will be discouraged. The occasional case in Congress can be handled appropriately. If the public interest is clear, the burden will be minimal.

None of the amendments discussed in the press, in several bills introduced in the House or in the comments of opponents of the act offers the possibility of effective protection of endangered species while weighing the public interest in other areas.

The danger that amendatory escape clauses are likely to become political footballs in which the principles of species protection, whatever the procedures, is always the lowest decisional priority. Such amendments inevitably would remove the present agency motivation to negotiate in good faith to resolve potential conflicts.

Along the same lines, it is important to note that the vigor with which Congress reviews the Tellico Dam issue will help establish a workable system of implementing the act. If agencies are shown that the ultimate potential for last-resort review of an exemption by Congress is a serious, factual inquiry, agencies will be motivated to settle their conflicts in the administrative process. If a Tellico exemption were to become a political football, it would encourage the flood of cases which no one wants to see come to Congress.

Much has been said about Tellico to date. Suffice it to say that the hearings so far appear to establish: (1) that TVA has consistently declined to consider any project alternatives to achieve project benefits without a reservoir, even though this would fully protect the species and its habitat; (2) that even today such beneficial alternatives appear to exist; (3) that TVA will not develop viable alternatives unless Congress asks them to do so; and (4) that the valley is a unique resource that, like the snail darter, merits our best efforts in public decisionmaking, because once flooded it will be lost forever.

Since there is literally no rush for more industrial lots, flatwater recreation or minimal water project benefits in Tennessee, we urge that the decisional process on Tellico be undertaken carefully and in the public's interest. The effectiveness of the Endangered Species Act nationally is at stake as well as this special public resource in east Tennessee.

Tellico also raises a further issue of national relevance. From the beginning, TVA took the position that transplanting the species elsewhere was a full and logical policy in regard to the Endangered Species Act in general and the Tellico Dam case in particular.

Resolutions of conflicts between projects and the act are best achieved, as they have been in the large number of endangered species cases arising in the agencies to date, through research, design review, modifications in process, location, and timing which reconcile the competing interests.

The transplantation argument misses the major point of the Endangered Species Act and section 7. Section 7 is designed to protect endangered species in their natural habitat, and to that end the statute prohibits destruction of their critical natural habitat. The courts have made this extremely clear.

The only possible legal relevance that transplantation has to the situation at hand is that over time sufficient transplantations might allow the Secretary to delist recovered species. By its very nature this possibility requires protracted time periods and biological certainty.

Jimmy Carter said last year in reference to the Endangered Species Act:

Abundant and diverse fish, wildlife, and plant species are essential to our enjoyment of the natural world, as well as our own survival * * * Our fish, wildlife and plant resources act as an indicator of the health of our environment * * * When they have trouble surviving, we should seriously examine the quality of our environment.

By their very presence, most endangered species indicate a threat that its habitat's quality is disappearing—for humans and nonhuman species alike. That habitat in question is as the canary in the coal mine—we must guard its life with our own because it in fact may one day be our own that is threatened.

On the basis of the reasons noted so far, the conflict between the snail darter and the TVA's Tellico Dam offers a strong precedent for the act and against the transplantation strategy.

In the Tellico case, the agency has consistently refused to consider conserving the snail darter in its original habitat because to do so it would have to consider suggested nondam alternatives to the economic development project. Current GAO and development planning reviews indicate that project modifications are feasible and consistent with the preservation of the snail darter population in its natural habitat.

In terms of transplantation in the Tellico case, TVA has initiated a transfer of 700-plus snail darters into the Hiwassee River about 40 miles from the critical habitat on the Little Tennessee River. Though some evidence exists of survival and limited reproduction in the Hiwassee, the transplant site lacks the habitat conditions available in the Little T. The Little T offers extensive riffle areas of large gravel substrates which are necessary for the fish's reproduction and support;

the new sites have less than 5 percent of the habitat available in the Little T's range, so that even if the transplant is successful, closure of the dam would represent a 95-percent loss of an already endangered species.

The major effect on the species would, however, be the effects of toxic substances on the fish. The Hiwassee is joined by the Ocoee River, Tennessee's most polluted stream with sulfur, cyanide, and heavy metals.

It is difficult to imagine the survival rate being very high, as larval drift takes the fish into this stretch of river which is highly toxic. The Holston River, another proposed transplant site, suffers periodic discharges from an Eastman Kodak plant and has a mercury problem.

In sum, the Endangered Species Act has understandably raised a variety of issues never before debated, and it is commendable that the Senate has made time to review the performance of the act in practice. From this review we are pleased to note that the act is working, that it is making national accommodations between our endangered natural heritage and other human benefit principles, and we look forward to a continued constructive history for this important national conservation statute. (Prepared statement appears at p. 519.)

I would like to submit, for the record, the testimony by David Conrad on behalf of the American Rivers Conservation Council and National Trout Unlimited, Inc. [See p. 590.]

Senator WALLOP. Thank you very much, Miss Wickham.

Again, I would try to urge the panel to take it for granted that your full statement will be in the record, not just a summary of your views. If we are going to get through and have time for questions, I would very much encourage us to move on. There are some questions you are raising that are interesting. We would like to get some of them asked.

Mr. Berger?

STATEMENT OF MICHAEL BERGER

Mr. BERGER. Good morning, Mr. Chairman. I am Michael Berger, assistant conservation director of the National Wildlife Federation.

The federation is a nonprofit, nongovernmental organization which has independent affiliates in all 50 States, Guam, Puerto Rico, and the Virgin Islands. Three affiliates, in turn, are made up of local groups and individuals who, when combined with associate members and other supporters of the federation, number an estimated 3½ million persons.

We welcome and appreciate the opportunity to speak to you concerning our involvement with the Endangered Species Act of 1973 and its administration.

The federation is dedicated to conservation education and emphasizes the concept that wildlife is a renewable resource only as long as suitable habitat is available. We believe that the Endangered Species Act of 1973 embodies this important concept in one of the most far-sighted and comprehensive pieces of legislation ever enacted for the protection of wildlife.

The federation has urged a strong national commitment to the passage of endangered species legislation and most recently to providing meaningful and significant financial support necessary for its implementation.

One of the resolutions adopted by the affiliate representatives of the National Wildlife Federation in their 41st annual meeting held this year in Washington, D.C., reaffirms our concern for the alarming increase in the rate of species extinctions:

The National Wildlife Federation continues to believe that man has a basic responsibility to take every reasonable means, including financial expense, to insure that his actions do not result in the extinction of any animal or plant. Further, it is believed essential that units of Federal, State, and local governments must work together closely to preserve areas of critical habitat, prepare and manage recovery plans, and enforce regulations protecting rare, threatened, or endangered species, enlisting the aid of interested citizen groups and individuals to the degree possible.

The Endangered Species Act of 1973 focuses on the importance of habitat protection as a direct method to help prevent future extinctions. It recognizes that commercial exploitations, pollution and a number of other factors can contribute to the demise of a species, but the loss of the habitat necessary for the existence of endangered wildlife and plants is by far their greatest single threat.

The Secretary of the Interior, who acts through the Fish and Wildlife Service, appropriately occupies a pivotal role in the implementation of the act by issuance of biological standards for protecting species. But overall, the success or failure of this critical endeavor depends on the achievement of voluntary compliance by other Federal agencies and the participation of State agencies, as reported in the conference report with the act was passed.

Fortunately for the preservation of endangered species, most agencies have willingly complied with the requirements of section 7 and consulted in good faith. Through good faith consultation, the intent of the act is satisfied and potential differences resolved through negotiations.

Of an estimated 4,500 consultations between Federal agencies and the Fish and Wildlife Service, only 124 became formal procedural consultations; and of these, only 3 have not been resolved following this administrative process. All three involved citizen-invoked litigation. Only one of the three projects, Tellico, unresolved by the administrative and judicial processes, has reached Congress.

The federation has been involved in one of the litigated cases which has not reached Congress. This was in a complaint filed against the Department of Transportation by the NWF and our Mississippi affiliate organization. We were obligated to come to the aid of four remaining sandhill cranes whose existence was being jeopardized by plans for an interstate highway interchange.

After the court ruled that the Endangered Species Act had been violated, good faith discussions were held. We wanted to make certain the highway was built in a conservation conscious way, compatible with the needs of the cranes. The Department of Transportation has apparently agreed that land near the interchange can be acquired in public ownership, and that the "borrow pits" they needed to supply the road building material could be placed elsewhere. This could have been handled without reliance on the courts if good faith negotiations under section 7 of the Endangered Species Act and an honest assessment of both the need for all aspects of the project and

an evaluation of alternatives had been conducted at a much earlier stage.

The federation was recently involved in one of many examples of the good faith negotiations leading to the resolution of a possible conflict. It involved the endangered Bachman's warbler, a small yellow bird, whose best known habitat is in the 4,500-acre I'On Swamp in the Francis Marion National Forest in South Carolina. Warbler habitat was considered to be threatened by the proposed clearcutting of trees by the U.S. Forest Service.

The federation was prepared to represent a private group in litigation to prevent this activity when it was observed that both sides had valid arguments in the dispute. A federation attorney proposed a reasonable alternative, mediation. He suggested a three-person arbitration panel with wildlife experts from U.S. Forest Service, Fish and Wildlife Service, and The Wildlife Society. A moratorium calling for no lawsuits or cutting of timber was agreed upon until a recommendation was received from the panel.

A compromise was found that was acceptable to both government agencies and the conservationists. In the meantime, Clemson University scientists will further study the warbler. This is an example of commonsense and environmental concern being used most productively.

The federation recognizes that as human populations increase, disturbances to species will continue and habitat will be abused. Without Section 7 of the Endangered Species Act, we will lose any hope of achieving a uniform posture that will result in conservation and preservation of endangered species.

Section 7 was not conditioned to be interpreted only when economically advantageous to an agency or only when consistent with their special interest. The act was intended to be applied in all cases. It is an attempt to balance the concern for endangered species with the concern for economics and other special interests.

Sound, well-researched projects with opportunities for adversary input and honest, complete alternative presentations would negate the need for widespread civil suits or requested congressional review. To date there has not been a project that meets these review criteria and is conflicting with the critical habitat of an endangered species.

If in the future such a situation develops and the agency responsible for the project decides that because of overriding public welfare that the project must be completed, then a substantive review through the judicial and possibly legislative process is necessary.

The project should be able to stand up to a thorough evaluation, and then, and only then, should Congress have to balance the benefits to be derived for the public welfare.

The process of a substantive review of cases where there are irreconcilable conflicts between the continued existence of an endangered species and the completion of a major project should be reassessed on a case-by-case basis.

It is our contention that this will improve the quality of agency decisions and make it more likely that the broad purposes of NEPA and the Endangered Species Act will be realized. No blanket exemptions should be granted.

Many of the agencies of the executive branch have already recognized the need to incorporate their responsibility under the Endangered Species Act of 1973 into their ongoing programs. Unfortunately, these efforts, which include consultation under section 7 and critical habitat designation on lands they manage, have been with little or no additional funds or manpower.

In conclusion, Mr. Chairman, the National Wildlife Federation feels that the record demonstrates the act is working well and does not require amendment. The necessary expertise and procedures for implementation of the act have been carefully acquired by the Fish and Wildlife Service. They have met most of their responsibilities to date, and we have appreciation for their commitment to the purposes of the act.

It is our hope that these hearings will result in a better understanding of the difficulties in the administration of some of the far-reaching and controversial elements of this legislation.

More importantly, we must reaffirm our commitment to the purposes of the act. Thank you, Mr. Chairman.

Senator WALLOP. Thank you, Mr. Berger. Do you have other things you wanted to submit for the record?

Mr. BERGER. This is an abbreviation. The full statement has been submitted. It includes a resolution from the Tennessee affiliate relating to the Tellico project. [See p. 593.]

Senator WALLOP. Thank you, sir.

Mr. Poole?

STATEMENT OF DANIEL POOLE

Mr. POOLE. Thank you. I am Danial A. Poole, president of the Wildlife Management Institute, with headquarters in Washington, D.C. If you would put my statement in full in the record, and I will just highlight two or three points which to us are most important.

Senator WALLOP. Thank you. We will put the whole statement in the record. [See p. 605.]

Mr. POOLE. When the Endangered Species Act was written and passed, it was in really a highly emotional public atmosphere. Many of the suggestions offered by professional wildlife people were lost, in our opinion, under a deluge of letters from schoolchildren and other rightfully concerned, but really unknowledgeable, people. The act contains, therefore, some extravagant provisions that impede restoration of endangered and threatened species.

Despite this problem, we are firmly convinced that the act serves a vitally important function. First and foremost, the experiences I think you have heard from these folks here and others with section 7 of the act shows that it offers adequate flexibility to settle conflicts between endangered species and threats to their natural habitat. We urge that that authority not be weakened.

There are, however, two needed changes in the act in our opinion. We believe that they are appropriate for the committee's attention at this time. Both involve the pervasive nature of its application.

In fact, about every living thing on Earth, plant and animal, except designated insect pests, comes under the act's purview. We believe that it is unlikely that any single Federal or State agency ever will

receive anywhere near the funds, manpower, or political support to even begin to approach such a herculean task.

We recommend that the committee consider amending the act, particularly with respect to plants. We believe that plants logically should be the responsibility of agencies other than those charged with responsibility for fish and wildlife. The Forest Service and State forestry agencies, for example, would be more logical administrators of the endangered species programs for plants.

A second major problem with the act concerns the State-Federal partnership to manage endangered and threatened species under section 6.

A current requirement for a cooperative agreement is that a State wildlife agency have legislative or constitutional authority to manage within its borders all species listed by the Fish and Wildlife Service as being endangered or threatened. We think it will take decades, if it is possible at all, to encourage State legislatures to provide such sweeping authority in all States.

For this reason we support the recommendation of the International Association of Fish and Wildlife Agencies to amend the act to authorize the Secretary of the Interior to enter into cooperative agreements with States for those species which have the legislative classification and agency authority already established by State law.

That concludes my statement, Mr. Chairman, with the exception that I call to the committee's attention a speech on July 13 of this year before the Western Association of State Fish and Game Commissioners, a speech by Keith Schreiner, Associate Director of the U.S. Fish and Wildlife Service, on the subject of the administration of the act. It contains very current and relevant information, and, if the committee doesn't have it, I would like to submit it for the record. It is most worthwhile to read it, I think.

Senator WALLOP. I would appreciate it. I am sure we do not have that.

Mr. POOLE. Thank you.

Senator WALLOP. Thank you very much.

[The speech follows:]

FEDERAL VIEW OF "REALISTIC" ENDANGERED SPECIES
ADMINISTRATION AND MANAGEMENT

Keith M. Schreiner

Associate Director - U.S. Fish and Wildlife Service

There are those who would define "realistic" as a word that means "do it my way," and "practical" as meaning "the art of ignoring the facts." I will try to avoid these interpretations in the discussion that follows. If we assume that realistic and practical mean "facing the facts," then facing the facts of managing endangered and threatened species at the Federal level means:

1. Recognizing just how many species there are in the plant and animal kingdoms of the world and then understanding just how big the job is.
2. Recognizing that some species are in deep trouble and need help more than other species and, therefore, priorities must be set both for listing and for taking recovery actions.
3. Recognizing that manpower and dollar resources are limited and that they must be utilized to do the most possible good for those species that will benefit most from the effort.
4. Recognizing that endangered species is an emotion laden subject with high public visibility, and that for every major action taken, there will be strong reactions both positive and negative.
5. Recognizing that Congress was vigorous and almost unanimous in passing a strong endangered species law, but they show strong signs of apprehension now during its implementation. You are, of course, aware of the confrontations over the past year on certain Federal development projects.
6. Recognizing that the Federal Government does not have all of the brains, nor brawn that is needed to do the job, and that there is a wealth of expertise and people-power in the State and private sectors if it can be joined into a unified work force with common goals and objectives.
7. Recognizing that some species will be lost and that there is little or nothing that can be done about it considering the present state of our knowledge and our finite resources. Given all the money and manpower we could use, we would still not be able to save some.
8. Recognizing that our job is to maintain maximum species diversity while permitting optimum development of the world's resources essential to the highest quality of life that can be sustained perpetuity.

Presented at the Western Association of State Game and Fish Commissioners,
Tucson, Arizona, July 13, 1977

I will pursue each of these eight issues separately and briefly in the hope that it will shed light on some of the real issues we face today and how they may be dealt with.

Few people are cognizant of the number of plant and animal species in the world nor of the problems involved in trying to determine their status and whether they qualify for listing. There are an estimated 1,500,000 species of plants and animals in the world today. The majority are animal species, and of the animal species the majority are invertebrates. There are at least 3 to 5 times as many subspecies as species, and the number of taxa below the subspecific level boggles the mind. The vast majority of foreign species are little known and most are practically unknown insofar as current population status and trend are concerned.

About all we can do to resolve this problem is conduct more intensive surveys of plant and animal groups that are candidates for listing by virtue of the fact that they are heavily exploited, or in a region of the country that is undergoing rapid habitat destruction, or they are in the path of a major planned development, etc.

Surveying plant and animal species costs a lot of money in the United States and even more in other parts of the world. Experience suggests that one-quarter to one-half of the species surveyed will not be candidates for listing, and this further increases the cost of the listing process. Realistic administration of this activity means selecting the best candidate groups for surveying, paying your money and taking your chances.

It's a fact that some species are in real trouble now, some are headed for trouble, and others are faring well. If we knew which was which, we could solve the first problem and the second problem too. Or could we? Is it as simple as that?

Should a highly endangered species of grasshopper take precedence over a highly endangered species of mountain lion, or an endangered tree species take precedence over an endangered bird species? Are pupfish less important than whooping cranes? Are rattlesnakes less important than timber wolves? Are U.S. species more important than foreign species, or is a species in a foreign country more important than a subspecies in the U.S.? Realistic management at the Federal level means setting these kinds of priorities and, to the degree possible, sticking with them.

Our basic premise has been that all species, as defined in the Act, are equal, but in order to set priorities, we have opted for species over lesser taxa, U.S. species before foreign species, species for which the data are available before species for which the data must be acquired, and species that appear to be endangered before species that appear to be threatened. We do not distinguish between vertebrates and invertebrates, or between plants and animals in setting these priorities. The reason is that the purpose of the Act is to preserve the ecosystems in which endangered and threatened species reside. Ecosystems are composed of both plants and animals and both vertebrates and invertebrates.

During Fiscal Year 1973, the year in which the Act was passed, the FWS had 1.8 million dollars to start a program to save the endangered and threatened species in the plant and animal kingdoms of the world. We also had about a hundred people working part-time on this effort along with a lot of other jobs. Today we have 9.3 million, not counting grant-in-aid and land acquisition funds, to do the same job. Our manpower has increased to about 150 people mostly working part-time on endangered species. Some spend all of their time on the program.

We estimate that it would take three times as many dollars and people as we now have to do the job adequately. In addition, we must have the full support of all 55 State and territorial conservation agencies; we must have all Federal agencies working with us; we must have the support of the private conservation agencies; we need a minimum of 3 to 4 million dollars in grant-in-aid funds annually; and we must have from 30 to 40 million dollars each year to acquire key habitats of endangered and threatened species if we are to do the kind of a job that everyone seems to want us to do.

What is the point of all this? It is simply recognition that we do not have these kinds of dollar and manpower resources and may never get them. Therefore, realistic administration of endangered species in this case means making every dollar and every man-day of effort achieve its maximum potential. To do this, we had to establish more priorities for recovery actions, or management efforts if you prefer. We have decided first to spend our money and effort on U.S. full species that are endangered and declining, if they have a reasonable recovery potential. From there on a variety of options are available.

If I did not realize that endangered species conservation is an emotion laden subject when I first became involved a few years ago, I know it well now. I have been taken apart more times in the past 3 or 4 years than I care to remember. The endangered species program and my honesty, integrity, intelligence, and professional judgment has been questioned by the national press, major magazines, and in recent times, an occasional television broadcaster. Sometimes the criticism comes because someone thinks it will sell newspapers, particularly if it contains minimum facts and maximum sensationalism. But more often the criticism comes because someone didn't like or understand what we did or didn't do. And occasionally, in different articles on the same day, we are criticized in the press both because we did it and because we didn't do it sooner.

The point here is that no matter what we do or don't do in this endangered species business, we do it in a fish bowl-- and that's not going to change. Consequently, realistic administration of the endangered species program in this case means obtaining the best facts and advice available, deciding what is best for the resource, then doing it. I take great solace in being criticized by both sides of an issue at the same time-- it gives me confidence that I am doing what is right for the resource.

Soon both the Senate and the House will be holding overview hearings on the Endangered Species Act, with particular emphasis on Section 7. This section of the Act directs Federal agencies not to jeopardize the continued existence of an endangered or threatened species, and not to modify their critical habitats. Congress passed the Act in December of 1973 by an overwhelming majority in both Houses, and they did it with enthusiasm. They passed the Act knowing that its heart and soul was Section 7. They knew that Section 7 had teeth, and that those teeth had keen cutting edges. They were roundly applauded for their actions by environmentalists, conservationists, and fish and wildlife managers alike.

Then came Meramac Park Dam and the Indiana bat, Interstate Highway I-10 and the Mississippi sandhill crane, and Tellico Dam and the snail darter. Out in the bushes of Maine lurked the furbish lousewort in the flood basin of the proposed Dickey-Lincoln project. A few congressmen suddenly developed an intense interest in Section 7. Certain Federal agencies started suggesting in various ways that the Congress had created an unworkable law if we were to have orderly development of this Nation's resources. Now more congressmen have taken an interest in the Act. Today there are no less than six bills on the Hill that would, in one way or another, weaken Section 7, and some would essentially invalidate it. There will be more amendments proposed by this Congress before it is through.

Realistic administration of the Endangered Species Act at the Federal level in this case means taking the position that the Secretary of the Interior, Mr. Cecil Andrus, has taken and will vigorously support. Assistant Secretary Bob Herbst referred to this in his keynote address.

The Act is not rigid and inflexible-- it is in fact practical, workable, and soundly conceived, and we can prove it. As Mr. Herbst stated, out of approximately 4,500 consultations with Federal agencies that have occurred to date, only three have resulted in major confrontations, and of these three confrontations only one appears unsolvable at this time by the concerned Federal agencies. In all other cases, differences have been resolved, and most of them were resolved rather simply and quickly so that the endangered species and their habitats were relatively unaffected, and most of the projects involved were built. This Administration doesn't believe this record sounds like the Endangered Species Act is an inflexible, unyielding law that will stop all progress in the United States.

This is not to say that there won't be some confrontations in the future-- there will be and probably there should be. But when two Federal agencies get together early in the planning stage, and they both have a sincere desire to get on with the construction and development needed in this country while damaging the environment minimally, it can and will be done most of the time.

Recently, President Carter came out strongly in favor of the Act and particularly in favor of Section 7 as it now stands. This should do much to convince Congress, Federal agencies, and the people of the United States that this Administration views the Act as solid, desirable, and essential environmental legislation, and that it does not intend to stand still while somebody meddles with the Act in an attempt to weaken it.

The Act is broad in scope; it reaches the far corners of the world; it covers all of the life forms of the universe. It is too big for one small Federal agency in one Department of our Government. Early on, it was recognized that if this job is to be accomplished realistically, we will have to enlist the help and support of everyone we can get. Congress recognized this fact when they gave Federal agencies major responsibilities and a strong mandate in Section 7. Congress recognized this fact again when they gave State and territorial conservation agencies a big part of the action in Section 6, and Congress recognized this fact again when they gave the people the right to file a civil suit whenever they felt anyone wasn't holding up his part of the bargain. In short, the endangered species job is everyone's job, and that is as it should be.

Realistic administration of the Act at the Federal level means developing a way to enlist all of the intense interests, people-power, dollars, professional talents, and desires to help wild plants and animals into a unified and coordinated work force with a common set of objectives and goals-- all aimed at effecting the recovery of endangered and threatened plants and animals.

This may sound almost impossible, but I am convinced that it can be done, and in fact is being done today.

There are in this country now 57 teams of experts developing and overseeing recovery plans for 68 species of endangered and threatened animals. These teams are composed of professionals and skilled laymen from Federal, State, and private agencies. The four represent some of the most skilled talent available in the United States. They are doing a job and doing it well. Of course, there are problems, friction points, and differences of opinion, but by and large this work force is doing a tremendous job in a manner that deserves the praise of everyone that really cares about wild plant and animal conservation or the preservation of wild habitats. We all applaud the endangered species recovery teams that are giving unstintingly of their time and labors.

Now some bad news. It is sad but true that some species will become extinct in spite of anything that can be done. Even now the red wolf, the California condor, the black-footed ferret, the Puerto Rican parrot, the Caribbean monk seal, the ivory-billed woodpecker and others are either perilously close to the edge of extinction, or they have already dropped over. I confess that acknowledging that a species is too far gone to recover is very hard for me to do. Personally, I think it is equally hard for others-- either professionals in the field or citizens of this country. Losing a species is a fate worse than death. Yet, this issue must be faced squarely. To devote precious time, dollars, and muscle to a lost cause may have undue adverse influence on those recovery efforts that have a real chance.

Therefore, realistic administration of an endangered species program at the Federal level is recognizing that some endangered species cannot be helped in spite of the knowledge, dollars, and effort available to us. We must decide to either place them in a permanent custodial institution or to walk away and let the inevitable happen. In the near future, we will implement criteria for determining when a species is beyond the point of no return, and a policy for handling the situation. We must do this for those species that can still be helped by our efforts.

The last point I want to talk to you about is perhaps the hardest and most controversial. It flies in the face of the current day protectionist who is dead set against killing in any form. These well-meaning but highly misinformed people will do anything to stop a project that even remotely threatens a species. It also flies in the face of the dedicated academician who has devoted his life to the study of a particular species, and because of this devotion cannot tolerate anything that means the status of this species must yield a little or its habitat must serve a dual purpose. Finally, it flies in the face of the dedicated fish or wildlife biologist who is an advocate for a single species such as the white-tailed deer, the rainbow trout, or the belted peccary if it means that he can't change the habitat to favor his species regardless of what it may do to the other species that share the same habitat.

But let's consider some basic facts and see if we can't arrive at a reasonable solution. First, the human populations of the world are growing while food supplies and energy reserves are shrinking. Continued developments in the form of housing, job opportunities, food and fiber production, energy development, etc., must and will take place with us, without us, or in spite of us. Secondly, as professional fish and wildlife biologists and ecologists we were trained that species within a given ecosystem are often dependent upon one another in ways that presently are both known and unknown to us. We know, better than anyone else, that monoculture of a single species at the expense of other life forms is biologically wrong. We know that maximum retention of species diversity in an ecosystem is the target to shoot for.

Given these two sets of facts which few would argue with, it becomes increasingly apparent that our primary job is to maintain maximum species diversity while permitting optimum development of the world's resources where these resources are essential to the best standard of living that can be maintained in perpetuity. If this premise is acceptable, what does it mean? Simply this-- we must stop our traditional adversary role in water developments, power developments, agriculture expansion, energy production, etc., and start trying to help the developers locate the site, design the structure, and develop the operational regime that will do the least harm to wild plant and animal species and their habitats. It is likely that in some instances we can enhance the habitat and ultimately the species if we accept the fact that development must and will continue.

So I repeat, realistic endangered species administration means all of us helping developers to locate, design, and operate their projects in a manner that is least harmful to species and their habitats. For build them they will, with our help or without it. Realistic management of endangered and threatened species and their habitats means giving full consideration to all species in a particular habitat or ecosystem before carrying out management practices that could aid one species while literally devastating others. In short, we must become ecosystem conscious and ecosystem management-minded now.

This then is the realistic way, indeed the professional way, that we must proceed with in future administration and management of the endangered species program.

Senator WALLOP. Mrs. Stevens?

STATEMENT OF CHRISTINE STEVENS

Ms. STEVENS. Thank you very much. My name is Christine Stevens, and I am speaking in behalf of the Society for Animal Protective Legislation, the Humane Society of the United States, the International Primate Protection League, and Let Live.

I would like to emphasize the leadership role of the United States in the whole endangered species program internationally. First of all, we have the best law in the world on this subject. There is nobody who can even come near to challenging it.

Second, the United States took a very important role in preparing the conference for the Endangered Species Convention, to which I believe now 35 nations have adhered. It is vitally important that we maintain this strong leadership role, particularly at this critical time when other nations are following our lead and are coming into the convention.

We do expect many more to come in, so that what we do here with our own Endangered Species Act will affect the entire world, not just our own country—important though that obviously is.

I have just come from Canberra, from the meeting of the International Whaling Commission, where President Carter's statement was extremely important in bringing about a major reduction, over 35 percent, in the quota of whales to be killed next year.

Again, our leadership role has had a great effect in this very important conservation activity. So I would urge that in holding these oversight hearings, you consider the proud place that this Nation holds at the very forefront of an international fight to prevent the extinction of species and maintain the magnificent diversity of life on Earth.

It is with the consciousness of the responsibility of outstanding U.S. leadership, recognized throughout the world, that any consideration of modifying the Endangered Species Act should be approached. To weaken the act, to pull back from our commitment at this critical time, would mean that many other nations would do the same thing and it would be a worldwide disaster. It would result in the loss of many species.

I have attached to my statement, which I trust, Mr. Chairman, will be in the record [see p. 609], a rather odd clipping that I took from the front page of a Florida newspaper as I was going through the airport.

The reason for drawing your attention to what appears to be a rather uninspiring public relations effort is to illustrate how the public is being misled. The average poorly informed reader sees reference to the "lowly" plant, is to admire the hydroelectric project, and then dismiss the Endangered Species Act. The bias plays upon ordinary human responses, but it fails to provide the information which normal human intelligence requires to form a sound judgment.

Of course, it is understandable that some Government agencies looking at the law from their own special viewpoint overlook the broad issues, but we hope the Senate will not do that.

As Dr. George M. Davis has written, "The act's strongest provision was structured to protect a species from its greatest threat, the U.S. Government itself."

But there are private interests, too, that find the requirements of the act a nuisance to their unrestricted trading or use of endangered species. We believe the administration of the act can and should continue to be improved and that any unnecessary delays should be prevented in the granting of permits.

However, there is no need for legislative action by the Senate to make such improvements. The executive branch can achieve them, and we believe the new administration should be given the opportunity to make the well-designed machinery of the act run smoothly.

No exemptions should be made for zoos and the animal dealers that supply them. Nor should exemptions be made for falconers or other users of living or dead endangered species. There is no need to do this. On the contrary, there is a vital need to maintain the strength and vigor of the law for the sake of future generations of human beings.

I have with me a very recently published book called "The Animal Connection," in case you would like to read about an animal trafficker. One chapter is headed, "The Private Life of a Trafficker." The quotation says, "There are trades in which it is impossible for a man to be virtuous. Socrates."

This man knows from the inside how true that is. In other words, the smuggling of endangered species, alive or dead, for the zoo trade, medical research trade, pet trade, fur trade, is a most serious matter.

We haven't even begun to catch up with the smuggling that is going on. That is why if anything were ever done with the act, it should probably be strengthened, certainly not weakened.

I will just quote one or two things. "With birds, one has to budget for a 40 percent loss at the outset. Even under the best conditions of transport in captivity this is so." He mentions somewhere else 80 percent loss of birds in transit.

He mentioned clouded leopards, which are practically totally extinct. There are very few left. He tells about how he took them across the Mekong, but that is much too long to tell. Finally they get there. They get past all the customs agents, bribing people left and right. But they are afraid maybe the leopard is dead inside the crate, so they give it a poke and got a "hoarse, angry roar." We would have to get the leopard out by using a kerosene torch. So they light the torch behind the cage and "it bounded like a cannonball suddenly shot out of the crate." It goes on to describe the animal and its condition. The long confinement in the filthy coffin-like crate had brought on a terrible skin disease, and there was hardly any fur left on its body. The tail was completely bare. I will not go on with these disgusting descriptions, but I do urge you not to imagine that the treatment of a wild animal in commercial trade is a pleasant one.

In conclusion, in the long term, all existing species depend to some degree upon the others. But it is our species which, far more than any other, because of our wide dispersal throughout the world, needs diversity of other species.

Those who claim that we would have future disasters if we don't change the act should be ignored. Should any genuinely serious conflict arise, the Congress can surely deal with it at that time, but no matter of serious national or international concern has arisen to date which would call for a weakening of this law.

It is a law which will have meaning thousands of years from now if our species has the foresight, wisdom and compassion to preserve life on Earth. Let us resist the temptation to tamper with the Endangered Species Act.

Thank you very much.

Senator WALLOP. Thank you very much.

Dr. Lovejoy?

STATEMENT OF THOMAS E. LOVEJOY

Mr. LOVEJOY. Thank you, Mr. Chairman. I am Thomas Lovejoy of the World Wildlife Fund, which is the major international private conservation organization and which depends in large part on the International Union for the Conservation of Nature (IUCN) for its scientific resources.

The Endangered Species Act is a profoundly significant piece of legislation, formally recognizing that the biological impoverishment of the United States, and indeed the planet, is inextricably linked to the impoverishment of peoples here and abroad. It is occasionally important to review why this is so. I will do this briefly by posing three questions and answering them.

First, what is the value to society of endangered species?

While some may argue that by the time a species is endangered it is no longer playing much of a role in its ecosystem, the potential to resume that role may still be very much there, and is consequently to be valued.

Also, it must be recognized that in many cases endangered species are indicators of entire ecosystems in danger. Further, endangered species are frequently warning bells of environmental degradation, as in the case of the peregrine falcon warning us that our ecosystems were pervaded with toxic substances.

Second, what is the value to society of species generally?

The planet's support system for man rests squarely on its ecosystems and their ability to convert solar energy into forms consumable as food or otherwise. And since the component parts of ecosystems are species, then loss becomes analogous to throwing out a bolt fallen from an automobile because the vehicle still seems to be running properly.

Also, our vast ignorance of biology simply does not leave science in a position to predict which species may one day have immediate and valuable use for man. For example, had plants of the genus *Cinchona* been permitted to go extinct before the usefulness of quinine as an antimalarial was discovered, we would have neither quinine in our pharmacopeia nor the synthetics for which quinine provided the inspiration. And as we squash the fruitfly on our kitchen counter, is there any awareness of its important contributions to medical genetics?

In a larger sense then, man-caused extinctions are limiting the potential growth of knowledge and constitute a form of bookburning of a very frightening sort—burning of books that have yet to be written.

Any limit we set on the growth of biological knowledge in fact reduces our future and alltime ability to manage ourselves and the planet wisely. Should we throw away the owner's manual to our car before we even know the names of all the parts?

Third, cannot technology do a Humpty Dumpty of recreating an extinct species?

Most processes on this planet are reversible given sufficient, and often enormous, inputs of energy. But extinction is irreversible. Even given the entire genetic blueprint for a species—and there are about 10 million species, most of them unnamed—it would take an enormous effort and a myriad of technological hurdles to recreate the genetic material for a single cell. Isn't it more sensible to keep our car rather than try and build a new one when we don't know how?

In sum, the act must be viewed as profound legislation, the wise decision of an intelligent society. Section 7 prevents us from the hypocrisy of undercutting our own best interests, and as well, enables us to live up to our international agreements such as the Washington Convention on Endangered Species.

Thank you.

Senator WALLOP. Thank you, Dr. Lovejoy.

Dr. Zagata.

STATEMENT OF MICHAEL ZAGATA

Mr. ZAGATA. Senator Wallop, thank you for this opportunity to testify. My oral statement will summarize the written statement which I have submitted for the record. [See p. 613.]

I am Michael Zagata, Washington representative of the National Audubon Society. I am here today to defend and support the act and the following purposes for which it was written.

First, to provide a means whereby ecosystems upon which endangered species and threatened species may be conserved; and second, to provide a program for the conservation of such endangered species and threatened species.

It is difficult to fault the farsighted conservation ethic displayed by Congress in drafting and passing the act. Your action in passing this legislation echoed the sentiment of the American people who are highly cognizant of the potential losses associated with the knowing demise of a species.

From a practical standpoint, the Endangered Species Act of 1973 was written in recognition of the following facts.

(1) Various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation.

(2) Other species of fish, wildlife, and plants have been so depleted in numbers that they are in danger of or threatened with extinction.

(3) These species of fish, wildlife, and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people.

In recognizing the values of endangered species, Congress, for the first time, established a system by which those species could be weighed against other valued resources during evaluations made in compliance with the National Environmental Policy Act, and the Fish and Wildlife Coordination Act.

It is vital to our well-being that Congress has recognized that these often inconspicuous and, with our present knowledge, seemingly value-

less plants and animals and their associated habitats do have value. In our society, which historically has had a highly exploitive relationship with nature, protection is not generally afforded species and/or communities lacking an economic value or the known potential of having an economic value.

We are only now recognizing, as the coal miners did years ago when they took a canary with them into the mines, that many of the innocuous plants and animals do have or may some day have a value to mankind. We cannot fault these plants and animals for our current limitations in knowledge about their potential values.

Who would have fought to save the mold penicillin from extinction in the 1700's? If someone had risen in defense of this mold, they would have been labeled a quack, or worse. Who among us knew of the value lichen communities would provide by indicating various types of air pollutants? We are only today discovering that the honey of honey bees may be used to monitor the level of heavy metals in the environment.

Besides the potential health benefits associated with plants and animals, there may be unknown economic benefits as well. The jojoba bean of our western deserts is an example. It was considered a noxious weed and treated as such until research results demonstrated that its oil had properties similar to those of the threatened sperm whale. Now the jojoba bean is receiving a good deal of positive attention.

In general, the animals threatened with extinction are not those that compose the early stages of ecological succession, often undergo population eruptions and are regarded as weeds or pests. Instead, they tend to occupy more stable communities, have lower biotic potentials, require rather narrow, specific habitat conditions and, in the case of animals, occupy the upper rungs of the food-chain ladder.

It is for these very reasons that are so valuable to man as indicators of the impacts of various forms of natural and man-induced environmental perturbations.

The bald eagle, for example, helped demonstrate to us how persistent pesticides passed through the food chain and became magnified in concentration as they moved from link to link. Our monitoring program indicated that aquatic levels were well within the "safe" range. The eagle proved otherwise.

In supporting the act, we wish to make special reference to section 7. Claims have been and schemes designed to show that section 7 is inflexible, and therefore, must be amended. The record does not support these contentions.

According to a statement made by Secretary Andrus at the 1977 annual meeting of the National Audubon Society, section 7 of the act is working and conflicts between the Endangered Species Act and Federal projects have been overemphasized, with most problems having been resolved through negotiations among the affected agencies. In fact, in the 3 years since the passage of the act, there have been about 4,500 informal consultations and 124 documented consultations between the Department of the Interior and other Federal agencies.

Of this number, only three have been unresolved via consultation and have thus been ruled upon in the courts. Of these three, two have reverted back to the agencies and one, Tellico, is being aired before Congress. It is obvious that section 7 is working and that Congress' intent in passing the act is being fulfilled.

The National Audubon Society strongly endorses the existing mechanism for avoiding conflict with the act and for resolving conflicts if and when they arise.

If after the courts have reviewed the case no satisfactory solution can be reached, then Congress should be the final decisionmaker. We feel that if Congress exercised its authority and judgment and called for a vigorous review of any project they are called upon to adjudicate, as it has done with Tellico, that the number of such cases would be minimal.

Such a review should evaluate a project's economic and social impacts, its environmental impacts over and above any effects on endangered species, and its overall benefits.

Tellico is a good case in point. It is the first project to be in violation of the Endangered Species Act that has reached Congress. To determine why this occurred, let us examine Tellico's history with regard to NEPA.

NEPA requires all Federal agencies, before taking major actions, to consider alternative actions, including actions which can only be accomplished by other Federal agencies. In good faith, an agency should take a look at the possible consequences of actions they are about to take and examine how they might impact on the Nation's interest. Each major project is to be reviewed in terms of benefits and costs, project alternatives and environmental impacts on the species, including mitigation.

It was the absence of these procedures for Tellico under NEPA, owing to the protracted cause of the TVA controversy, that has resulted in Tellico being essentially an Endangered Species Act case and not a NEPA case.

In other words, the fact that TVA has demonstrated disdain for NEPA and is exempt from the Fish and Wildlife Coordination Act has put Congress in a position of having to consider amending an act it so overwhelmingly supported.

This demonstrates agency inflexibility rather than statutory inflexibility.

In summary, Mr. Chairman, the National Audubon Society supports the Endangered Species Act as written and would strongly oppose any amendment to weaken it. We believe that man has the responsibility to take every reasonable means to insure that his actions do not result in the extinction of any plant or animal.

We would like to see increased funding to implement all sections of the act, especially section 6; and two, as President Carter requested in his 1977 environmental message, identify all critical habitat as expeditiously as possible. Early identification of critical habitat would facilitate agency planning and the consultation process.

In our testimony we have alluded to various kinds of values associated or potentially associated with endangered species and their habitats. The key value that is approached by this act is that of the ethic for the land and associated resources.

If I might, I would like to close with a quote from the late Dr. Leopold:

The key lock which must be removed to release the evolutionary process for an ethic is simply this: Quit thinking about the decent land use as solely an

economic problem. Examine each question in terms of what is ethically and esthetically right as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.

Thank you, Mr. Chairman.

Senator WALLOP. Thank you very much, Dr. Zagata. Your whole statement will be put in the record.

Senator WALLOP. Mr. Bean?

STATEMENT OF MICHAEL J. BEAN

Mr. BEAN. Thank you, Mr. Chairman. My name is Michael Bean. I am the author of "The Evolution of National Wildlife Law," a comprehensive legal analysis of Federal wildlife law, published this spring by the Council on Environmental Quality.

It is a pleasure for me to appear here today to testify before this subcommittee on the Endangered Species Act. With respect to the testimony that follows, I wish to state that although I am employed by the Environmental Law Institute, I am not here today as a spokesman for that organization or any other organization. Rather, the views that follow are entirely my own, views that I have reached as an observer and interpreter of Federal wildlife law.

I would add, however, that I have had the opportunity to discuss the substance of my prepared remarks with the general counsel of the Environmental Defense Fund, who asked that his organization be associated with these remarks.

From the 3 days of hearings last week, and from various bills that already have been introduced, it is clear and hardly surprising that the one aspect of the Endangered Species Act with which this subcommittee is most concerned is its section 7. That concern specifically is whether section 7 imposes unreasonable restraints and burdens on the accomplishment of various other Federal programs.

What the testimony you have heard in these 3 days clearly shows is that in the great majority—indeed, in the vast preponderance of instances in which section 7 has come into play, it has not imposed any great burden on those other programs but has instead provided a very workable mechanism for accommodating the goals of those other programs with the need to protect endangered species and their critical habitats.

The required consultation procedure embodied in section 7 enables Federal officials to identify at the inception of a project or activity its likely effects upon endangered species and to plan around any adverse effects that may be identified.

Since this procedure has proved workable in the vast majority of instances, it is clear that if any amendment of section 7 is needed, it should only be one which is exceptionally narrowly limited and which does not impair the proven effectiveness of section 7 in the normal case of its application.

But should any amendment be seriously contemplated? Those who would answer yes point most emphatically to the recent decision of the U.S. Court of Appeals for the Sixth Circuit in the case involving the Tellico Dam and the endangered snail darter.

The argument they attempt to make, it seems to me, is that notwithstanding the acknowledged importance of protecting against the avoidable loss of a unique life form, that concern should be overcome where four critical factors are present: (1) a substantial commitment of resources to a major Federal project has already been made at the time its adverse effects upon an endangered species first become known; (2) no modification or adjustment to the project which will avoid the proscribed effects can be made; (3) the commitment of resources is otherwise irretrievable in the sense that it cannot reasonably be recouped or diverted to some other useful purpose; and (4) the agency has acted in full good faith to identify the effects of its project on endangered species in advance of its substantial and irretrievable commitment of resources.

Opponents of any amendment to section 7 have contended that however Congress ought to resolve a conflict such as that hypothesized, it simply is not faced with those facts in the *Tellico Dam* decision. Rather, they have shown that it is at best uncertain whether any or all of the assumed factors are present.

Thus, it is evident that the case for an amendment to section 7 rests upon an imagined set of facts not yet clearly demonstrated and not upon any actual instance of section 7's application.

In that regard, it should also be noted that in its petition for certiorari to the Supreme Court, the TVA is contending that the act as it already exists does not apply in situations like that of *Tellico*. If it persuades the court of that, its need for any congressional action will be obviated.

My advice to this subcommittee then is it ought to be very demanding that a compelling showing of the need for an exemption or amendment be made before it seriously considers any, and further that if it proposes an amendment, that amendment must be narrowly circumscribed to fit only those rare instances where the present wording of the act forces an unacceptable result.

Section 7 as it now reads is tough and needs to remain tough. Anyone familiar with the Fish and Wildlife Coordination Act, section 4(f) of the Department of Transportation Act, the National Environmental Policy Act, and the many other measures which attempt to mandate some consideration of wildlife values into agency development decisions knows all too well that where those statutes leave any room for sacrificing the interests of wildlife to other goals, the sacrifice will always be made.

In section 7 of the Endangered Species Act, Congress drew a line and said that the sacrifice of an entire species for all time was too great a sacrifice. Absent some very compelling showing that the line was improperly drawn, Congress ought to be very hesitant to redraw it now.

Senator, my written statement discusses one other issue that has been addressed by certain witnesses today and last week, that being the State and Federal relationship under section 6. I will not summarize it but merely call your attention to the fact that I do address it in my written statement. [See p. 627.]

Thank you.

Senator WALLOR. Thank you very much.

I would ask the indulgence of this panel, plus the one that is to follow it, and not withstanding the brilliant reorganization of the Senate, there are conflicts and this would seem unavoidable. I cannot get any other member of the subcommittee sprung to come and relieve me. So I am going to call a recess for about 20 minutes while I go attend to a matter that I have. Then I will be back. I will have a few questions.

If there are time constraints on members of the following panel, if you would make it known to the staff, I will see to it that we get that accommodated as quickly as I get back.

I apologize for having to do this, but I don't see another way around it. I am sure you would rather talk to somebody than the blank wall back there. If you will forgive me for about 20 minutes, I will be back as quickly as I can.

[Brief recess.]

Senator WALLOP. My apologies for the length of my 20 minutes. Apparently Senators handle time like they handle the budget and 20 minutes just turned into 30. I don't have any excuse to you except to offer my apologies. I am sorry.

I do have a couple of questions. Then I am sure that not only I but other members of the committee might have some they would like to submit a little later on.

I would throw this one out just to the panel for a response, because there have been a number of individuals that have charged in the previous hearings that the Endangered Species Act is being used by conservationists and others not so much to protect species but to stop projects that they otherwise don't like, and this is the lever which they seek to use it for.

Would anybody care to respond to that charge which has been made fairly frequently?

Mr. PLATER. Thank you, Senator Wallop. As you may guess, that question had been raised about the motivations of the conservationists and others who brought up the *Tellico* case in particular.

I think that the motivation argument really oversimplifies the point. The deeper you look into it, the more you see our legal system works precisely that way.

First of all, in most cases that I have seen, there are some of the citizen plaintiffs who are concerned only with the scientific issue. There are, of course, in the nature of things, a variety of people that are involved. I think it is rare to find a project case where you have only an endangered species conflict issue involved.

If you have only a pure endangered species issue, typically there is a controversy and no lawsuit results. So almost by the nature of things you find those two things together.

In most cases in our legal system you find an activity is not merely in potential violation of one statute but of many. For instance, when corporations try to sue to prevent takeovers, they very often are using not just antitrust laws but proxy cases and one thing or another. It is the same thing with environmental cases.

In an environmental case, you may find that you have an Endangered Species Act issue, as *Tellico*, and maybe the Rivers and Harbors Act and others. In our legal system, any violation alone may lead to a lawsuit.

In effect, what you are saying is that the Endangered Species Act lawsuits are often brought for a multiplicity of reasons. But in every case they are trying to do precisely what the Endangered Species Act was intended to do, which was to prevent the major human actions which would eliminate these species forever from the face of the Earth.

I don't believe that questions about motivation really go to the heart of that problem. The act appears to be doing what it was intended to do in those cases when a lawsuit is brought.

Senator WALLOP. I take it then you would not agree with the witness in the last hearing, who suggested that the definition of species be narrowed substantially.

Mr. PLATER. Dr. Ranney on the technical panel of last week?

Senator WALLOP. Yes.

Mr. PLATER. He argued that we should restrict species. Dr. Ranney is a technical consultant for TVA. The scientific community has taken quite the opposite position, that species do exist in great diversity and should be protected. I don't believe it is a misuse of the Endangered Species Act to raise the endangered species issue wherever it occurs.

Senator WALLOP. Mr. Zagata, before you comment, I would like to ask you one thing, because among bird watchers, of whom I am one, and I have many friends in the local Bighorn, Wyo., chapter of the Audubon Society, they take great dislike to the fact that many species of warblers are now being lumped together, not differentiated by members of the scientific community, which would indicate that the bird scientists are doing exactly what Dr. Ranney suggested be done in terms of differentiating among those species. Is that so?

Mr. ZAGATA. Well, there is some regrouping, but it is based on not facts that they were not species—well, the fact they may not have been species initially, that there were no physiological differences.

Senator WALLOP. Take, for example, the audubon warbler and the merle warbler in our part of the world. Most of us who look at them can differentiate between them, but I understand that they are all called audubon now.

Mr. ZAGATA. This is true. There have been several additions or revisions to the list. But the important thing is in the case of the warbler we are talking about specifically, it has been demonstrated to be a distinct species. If we get in a situation where there is a species that is questionable, then I think it is up to the scientific community to differentiate whether or not it is indeed a species.

Senator WALLOP. That is almost like relying on the accountants for the same piece of advice. The scientific community gets pretty broad.

Mr. ZAGATA. I would like to respond to your previous question. One of the problems with Tellico is that it was an ongoing project and that it was exempt from the Fish and Wildlife Coordination Act which dictates that wildlife be given equal consideration with other resources.

They didn't have to make that consideration. In order for NEPA to be invoked, a lawsuit had to be initiated. But I think what has happened is that the endangered species dilemma has arisen because other pieces of legislation were not allowed to be operative.

Senator WALLOP. But the charge has been raised in more than just that instance.

Mr. ZAGATA. To date, Tellico is the only one that has gotten this far. There will be some on the horizon, we can be assured. But I think again, TVA is going to be involved, and with the current amendments that are being proposed for the Fish and Wildlife Coordination Act, they will be a part of that act from now on, if passed, and the NEPA process is being given greater weight.

We have matured with regards to its implementation. So 3, 4, 5 years down the road I think we will be able to live with these pieces of legislation for what they were intended to do.

Senator WALLOP. Again, I ask any member of the panel to respond to this. Some "critical" habitat designations, like that for the grizzly bear out in our country, cover millions of acres of land, 13 million acres in that original proposal.

The problem when people refer to the inflexibility of the act and its application comes when the Fish and Wildlife Service comes out and proposes that designation and is unwilling or unable to tell anybody how that designation is going to make a difference in their life. It has obviously got to make a difference or there is no point in doing it.

Mr. Schreiner said the only thing we do is draw a line on the map and that is no significant action. If this is not a significant action, there is no point in drawing that line. If it is, there is a real consequence to drawing it.

Many very responsible people in the wildlife world do not view an area that size as being critical and have leveled the charge that we are more concerned with range than with critical habitat.

Mr. BERGER. I have heard that charge. One of the things we must keep in mind with the grizzly bear is that the 13 million acres in question represent only 1 or 2 percent of the entire former range of the bear in the United States.

Another thing has to do with the value judgment of how many bears are enough? We could put a fence around a thousand acres and say, "There is going to be one bear in here, and this is all the bears we need." How many does it take to maintain a viable population? What we determine as critical habitat is range that is occupied and has bears right now. I believe that 2 percent of what we formerly had doesn't seem to me to be a great deal to ask.

Senator WALLOP. It depends on whether you live in it or don't, how much it is asking. But the problem, you see, with the inflexibility is not so much the size, although it is a problem. It is the fact that the Fish and Wildlife Service refuses to tell anybody how that is going to affect their life or how it is going to change the method of living or operating or existing within that.

Mr. BERGER. The Fish and Wildlife Service can't tell anybody that until they know what activities will be proposed in that area. All the critical habitat designation does is point out this area as an area critical to the needs of a threatened species—in this case, the grizzly bear—and it says:

We are going to take special care to see that activities conducted on the Federal portions, only the Federally owned portions, within this critical habitat get an extra look to be sure that they do not deteriorate the critical habitat of the bear.

This does not preclude any activity. It says, "We are going to look at the specific activities."

For example, grizzly bears need berry patches which grow in openings in timber. It is conceivable that some agency could propose a series of small clearcuttings within grizzly bear habitat that would in fact be beneficial to the bear and still allow the timber to be removed.

As with any of the endangered species problems, we have to look at all the alternatives. Now, certainly, some actions would be precluded. I would think that several thousand acres pure clearcut would be one of those kinds of things.

I used that as one example of how projects and the act may be compatible.

Senator WALLOP. It is the Forest Service and their multiple use concepts and dictates, things that they are mandated to do. But it is a concern. I am just pressing a personal opinion that the Fish and Wildlife Service ought to develop at least an answer.

Mr. BERGER. They don't know what projects will be proposed for this critical area.

Senator WALLOP. But they do know what does exist there and they won't answer that one either. They wouldn't answer it about outfitters. They won't answer it about inholdings that exist within that critical habitat. That is where people got upset.

Mr. BERGER. It seems to me that the statement made at the hearings on this proposed critical habitat designation by Keith Schreiner covered that and said no action was precluded under this critical habitat designation.

Senator WALLOP. That causes people considerable concern, too, because if no action is precluded, that means he is talking about them, too. You have got to understand, as environmentalists and conservationists who are looking at this thing and defending it, as well they should, it seems to me you have got to understand how it affects the thinking of people there. If they are going to live with it and not resist it, then answers have to come to them. That much at least they do know, that they exist at present. They ought to be able to answer at least for existing cases, which they are unable or unwilling to do.

Mr. BERGER. I have heard some discussion on previous occasions related to concerns of private citizens in the area that designation of critical habitat will affect their private land and the operation thereof.

As you know, the Endangered Species Act has no application to private land or private landowners. It would not preclude any activities.

Senator WALLOP. But I was suggesting if you are surrounded by a policy that you lived with it, whether or not you liked it. If you are in fact an inholding and surrounded by 13 million acres of policy, you don't escape the policy.

Mr. BERGER. Much of this land is within parks and wilderness areas. For all intents and purposes—

Senator WALLOP. Most isn't all. That is what is concerning the people who live there.

Mr. BERGER. I understand your concerns.

Senator WALLOP. They are entitled to an answer. They are not getting it. Critical habitat, what it is and is not, still doesn't answer what it does and does not. That is what they want to know.

I think it is well and good to defend the Fish and Wildlife, but I really do think that they owe that kind of an answer if they are going to generate support for the kinds of activities that they wish to undertake.

Mr. BERGER. They are currently in the process, as I understand, of determining what proportions of the area are core areas; what portions of the proposed critical habitat are actually essential. They are investigating that right now. I suggest that when this project is completed they will be in a better position to answer your questions.

Senator WALLOP. I would hope so.

Mr. ZAGATA. There may be some value in this proposal in that right now the Forest Service is undergoing preparation of its 1980 RPA assessment. By knowing this may be designated as critical habitat, they can adjust their land management plans to include this potential and thereby mitigate what could have been maybe more serious losses. So possibly the Fish and Wildlife Service has done a service instead of a disservice by a theoretical proposal at this time.

Senator WALLOP. I would suggest that perhaps this is so in their relationships with other agencies. But nevertheless, there is a civilian population that is not federally minded, and I just again would reiterate, if public support is necessary, and I think it is, then public answers are necessary to sustain that support.

I have a couple of other questions. Mrs. Stevens, you were the only one who mentioned the convention. What do we do about other people's perceptions of whether or not certain of our species are endangered?

We had testimony from the gentleman from Arizona that really did call into question the designation of endangered species, the quail and other game species that they had, and had been harvesting for years. Yet the convention puts them on the endangered list and we honor that.

It seems to me that is another area in which support disappears.

Mrs. STEVENS. Senator Wallop, I tried to look that up. I didn't phone the Fish and Wildlife Service. But I am not at all certain that the gentleman from Arizona was correct in what he was saying. I couldn't find it in the documentation in our files. So I can't really answer that question as it is stated.

However, there certainly will be species that will come on the convention list which certain States may object to. That undoubtedly will occur.

But the only thing that one can do is to take the best scientific evidence, and that is what is done, both by the convention and also by the Secretary.

Senator WALLOP. I think there was also a very specific complaint that they were ignoring competent evidence from competent wildlife managers who had information and who had offered it and had received not even the courtesy of a reply about it.

Mrs. STEVENS. I can say that there are many complaints about the Department of the Interior from the conversation side, too, as far as the administration of the act is concerned. I certainly would not wish to stand up 100 percent for everything that has been done. Indeed, there have been very serious criticisms. There have been lawsuits. There

have been all sorts of things done to try to get better administration by the U.S. Department of the Interior on this particular issue.

I don't believe that something wrong was done. But nevertheless, we are very glad that you are taking an interest. And I think complaints to the Department are very beneficial in many cases, because they should do a better job than they have done. They don't have as much personnel as they should have, and they don't have as much funding as they should have. That also influences their competence.

But just to return to the convention, the Bern conference was very interesting. This was the first meeting of the parties this November. To hear the debate on different species by extremely able experts from all over the world was really enlightening.

I would suggest that if there are people in the States who don't like what is happening, they ought to go to these meetings. That is the way to find out what is going on and not to sit at home and complain.

Senator WALLOP. Sometimes the financial resources of either States or individuals who work for States are not as adequate as those of other people. It is difficult for people who have a job in a specific place always to get sprung and go in the same numbers as those whose perhaps job it is to do that.

Mrs. STEVENS. Dr. Gottschalk was present. He was part of the American Delegation and I assume would be representing the panel that you are referring to. So in effect they had a representative.

Senator WALLOP. I think it was his feeling that he had not a whole lot of attention paid to his expertise or what he represented, either.

Mrs. STEVENS. I don't think so. He was a very important part of the American Delegation. The American Delegation unquestionably were the leaders. They didn't always get what they asked for. There certainly was give and take. The Swiss Delegation is very important, too. So is the British.

Of course, people that came from conservation groups in different countries also had input. It was an excellent meeting.

But I would, if I may, submit for the record, because I don't know the exact answers to the questions, maybe someone here does know them, for the gentleman from Arizona. I would like to submit that information.

[Mrs. Stevens supplied the following:]

SUBMISSION OF INFORMATION ON THE LISTING IN APPENDIX II ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

Species listed on appendix II may be hunted, and under permit, may be shipped out of the country. Listing on appendix II makes it possible to keep track of the species. For this reason the United Kingdom proposed at the Bern meeting, November, 1976, that all felidae not already listed on appendix I be listed on appendix II in order to check the volume of trade. The puma found in Arizona (*felis concolorazteca*) is listed within this catchall category. Three other species of puma are listed on appendix I: the Costa Rican, the Eastern, and the Florida puma.

The Mearns Quail was listed on appendix II of the Convention in 1973 after the Mexican delegation proposed that all *Cyrtonyx montezumae* be listed on appendix I. After negotiation, it was decided to divide the listing into subspecies with one on appendix I and the other two on appendix II. The appendix II listing for *Cyrtonyx montezumae mearnsi* should not cause any difficulty to the gentlemen from Arizona.

Senator WALLOP. Would you or anyone feel that the gentleman from Florida's opinion that the declassification procedure ought to be eased somewhat, too, in the case of—he was talking about alligators. He said he was on the recovery team for a creature that was already recovered before the classification took place.

Mrs. STEVENS. I think there are times when the Department is slow. I think we all think that. As I say, whether you are from one side or the other, that is so. We wish that it were more efficient and moved to correct problems and find the solution with greater speed.

As I say, I do believe that they need more funding, and they need more first-class people there, because this is such an important law.

Senator WALLOP. The next panel is entitled interested parties: Mr. Jerry L. Haggard, American Mining Congress; Mr. Robert Wagner, executive director, American Association of Zoological Parks and Aquarium; Mr. Roger Thacker, president, North American Falconers Association; Mr. Andrew Oldfield, counsel, Safari Club International; Mr. Julius Brzoznowski, American National Cattlemen's Association; Mr. Harvey Liebergall, president, American Fur Merchants Association, accompanied by Mr. Gerald Greenstein, Pro Service Forwarding Co.

Gentlemen, I do very much appreciate your courtesy and understanding. I do give you my apologies for being late. I won't waste any more of your time on that.

Mr. Haggard, would you begin?

STATEMENTS OF JERRY L. HAGGARD, AMERICAN MINING CONGRESS; ROBERT WAGNER, EXECUTIVE DIRECTOR, AMERICAN ASSOCIATION OF ZOOLOGICAL PARKS AND AQUARIUM; ROGER THACKER, PRESIDENT, NORTH AMERICAN FALCONERS ASSOCIATION; ANDREW OLDFIELD, COUNSEL, SAFARI CLUB INTERNATIONAL; JULIUS BRZOZNOWSKI, AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION; JOSEPH POSER, PAST PRESIDENT, AMERICAN FUR MERCHANTS ASSOCIATION, ACCOMPANIED BY GERALD GREENSTEIN, PRO SERVICE FORWARDING CO.

Mr. HAGGARD. Thank you, Mr. Chairman.

This statement is being presented on behalf of the American Mining Congress. My name is Jerry Haggard. I am from Phoenix, Ariz., and am a member of the American Mining Congress' Public Lands Committee.

There has been, Mr. Chairman, I believe, sufficient experience now with the Endangered Species Act that the need for amendment has been made clear. We believe that this subcommittee is to be commended for holding these hearings in the recognition of that need.

We suggest that in considering these amendments, the committee should also consider that a statute must be designed to carry out its purpose, but it also must be designed to safeguard against its purpose being abused. Otherwise, as we have seen with the Endangered Species Act, and in response to your earlier question earlier today, advantage will be taken of the statute to accomplish other extreme, unintended purposes. The resulting backlash can do more damage to the worth-

while purposes of the statute and prevent its purposes from being achieved.

We invite your attention first to the provisions of the statute that has caused the greatest problems. That, of course, is section 7.

Section 7 has been construed to require Federal agencies to subordinate all other national policy and responsibilities to the preservation of endangered and threatened species.

I understand the committee has received testimony saying that those cases are few in which the Endangered Species Act has caused real problems; namely, the Mississippi sandhill crane case and the Tellico Dam case; that these have been the only real problems that have developed.

I would suggest that this is absolutely not true. In my conversations with State and Federal officials outside of Washington, I have found that everyone has indicated to me that they have been seriously affected in their programs with the Endangered Species Act, either in its implementation or by the threat of its implementation. This includes even officials of State fish and game departments who themselves are very concerned with the protection of endangered species but, nevertheless, they have been interfered with or prohibited in carrying out proper game management because of the possible effects on the Endangered Species Act.

In such cases you can frequently find some objecting citizen who can stop even proper game management actions by raising the absolute provisions of the Endangered Species Act.

The Fish and Wildlife Service has been applying the Endangered Species Act very aggressively through regulations and policy announcements. With respect to determining critical habitat areas, the Fish and Wildlife Service takes the position that "in its proposed regulations" a critical habitat designation must be based solely on biological factors. The Fish and Wildlife Service says that it would not be in accordance with the law to involve other motives, and it gives examples of other motives, such as to reduce a delineation of a critical habitat so that actions in the omitted area would not be subject to a valuation.

Even beyond the extreme provisions of the statutes, the Endangered Species Act has been extended by administrative systems being established by the Fish and Wildlife Service. This has developed into a multistep process which leads toward excessive listing of species, excessive designation of critical habitat, inadequate opportunity for the expressions of public opinion, excessive restrictions on land uses, which may be more important than their effects on listed species, and the abuse of the system for unintended purposes.

In my statement I give the example of the Tellico Dam case where in that instance environmental groups attempted to block the project first through NEPA and obtained an injunction. While that injunction was running out, they succeeded in listing the snail darter and obtaining the current injunction under the Endangered Species Act.

Similar actions are being carried out by environmental groups in other parts of the country, and it can be predicted certainly that this device on all land uses will be used with increasing frequency.

Another problem that we see created by the system arises from the extremely broad criteria for listing species. This broad criteria in-

cludes listing species which are rare only in fringe areas of their habitat, even though species may be abundant in other areas. This can be taken to the extreme, it could result in the entire United States being blanketed with separate fringe areas of species which range from abundance to zero population.

The next problem that we see arises from the mere volume of the list of species. When Congress first began to consider the Endangered Species Act of 1973, the record of the committee indicated that numbers in the range of 100, 200, 300 species were what were considered to be endangered. Now you have heard testimony today that that has raised the potential number of these species to be in the range of 200,000 to 300,000—and for the first time I heard in testimony today, up to 1½ million.

The next problem arises after the species has been listed. The Fish and Wildlife Service has adopted a policy that it is, and I quote, “both necessary and desirable whenever and wherever possible to designate critical habitats.”

Then, of course, after the habitat is designated, section 7 of the act, with its single-minded absolute requirements, applies to that area.

Another difficulty arises from the staged sequence of the steps in this system. The Chairman referred to this earlier.

First, the listing of an endangered species or threatened species is proposed for public comment, but in this stage the mass of the public does not have the technical ability or the information to make knowledgeable comments on those proposals.

Then, after a species has been listed, the Fish and Wildlife Service establishes the proposed critical habitat areas for that species. It is not until this point that most of the communities and persons near the habitat area realize the earlier listing of the species will have an effect on them. By then the die is cast and the remainder of the system follows, based solely on biological factors.

Meaningful comment on the proposed designation of critical habitat is precluded further by the third separate step of this process. That is, there is no way of determining at the time of habitat designation what kind of restrictions Federal agencies will choose, or will be required, to apply to the areas. For example, in the designation of the grizzly bear habitat, the Fish and Wildlife Service indicated that there may be many kinds of actions which can be carried out within the critical habitat.

This doesn't help a bit, as the Chairman correctly observed earlier, when the public is not advised of the kinds of activities which cannot be carried out in those areas.

Then this leads to the final step in the system which provides the Fish and Wildlife Service with a nearly veto power over proposed actions by other Federal agencies based upon the sole consideration of protecting endangered species.

The Service's proposed regulations would require each Federal agency taking an action which may affect a listed species to carry out a formal consultation process with the Fish and Wildlife Service. Then the Fish and Wildlife Service provides biological opinions and recommendations on the effect of the proposed actions, and I quote, and “it will then be the responsibility of the Federal agency to determine whether and how to proceed in light of its section 7 obligations.”

So the circle is then completed by reference to section 7, which I mentioned earlier. This prohibits any Federal agency from carrying out any action which would jeopardize endangered species or destroy, or even modify, its habitat. Once the Fish and Wildlife Service provides its opinion that another agency's proposed action will adversely affect a listed species or its habitat, section 7 applies to prohibit the action regardless of other national benefits the action would provide.

Furthermore, once the Fish and Wildlife Service presents negative comments on a proposed action, this lays the groundwork for the citizens suit provisions of the act and provides adequate means to halt any action of a Federal agency on the basis of endangered species protection alone, without any regard to other responsibilities of the agency.

The most recent example of this is in the Tellico Dam case where the court observed this was the third time in 5 years in which environmentalists have attempted to stop the Tellico Dam and the reservoir project. They finally succeeded under section 7 of the act.

Mr. Chairman, we urge your committee to recognize the extremely serious threat now and even more in the future which the Endangered Species Act and its administrative system pose to the United States. Although a rational system to prevent unnecessary harm to endangered and threatened species is a desirable national goal, this policy and this goal must be balanced with other equal or more important programs.

We urge your subcommittee to consider and adopt the suggested amendments that we have attached to our complete statement which we would appreciate being included in the hearing record.

Senator WALLOP. Thank you very much, Mr. Haggard. Your complete statement would be inserted in the record. [See p. 634.]

I would appreciate the rest of you using the same technique of summary in your statements so we can get through and develop some questions out of it.

Mr. Wagner?

STATEMENT OF ROBERT O. WAGNER

Mr. WAGNER. Mr. Chairman, my name is Robert Wagner. I am executive director of the American Association of Zoological Parks and Aquariums.

Mr. Chairman, the AAZPA membership presently numbers approximately 2,000. Included in this membership are approximately 200 zoological parks, aquariums, wildlife parks, and oceanariums, as well as zoological and aquarium societies, with total membership of approximately 250,000 persons.

This association has a definite interest in preserving and enhancing the wildlife collections of its members. These collections make an important contribution to the education and enjoyment of the more than 100 million persons who annually visit these collections in the United States.

Internationally, both in scientific and in conservation matters, the AAZPA is looked upon as the leader among national zoological park and aquarium organizations. By request, all international zoo federa-

tions have sought communication with the AAZPA on scientific and technical matters.

The AAZPA has been in the forefront of worldwide efforts to protect endangered species. Indeed, Mr. Chairman, the AAZPA in 1967 was responsible for popularizing the phrase "endangered species," which for some years prior to that had appeared on exhibit display signs at zoos.

In March 1967, before the Federal Government expressed any concern with endangered species, the AAZPA adopted resolutions binding the membership on dealings in such species.

As mentioned previously, the members of AAZPA were totally supportive of the congressional intent with both the 1969 and 1973 Endangered Species Acts. However, Mr. Chairman, we continue to have serious and far-reaching problems with Interior's interpretation and implementation of the act.

It is imperative that Members of Congress understand that the association's members do not have any quarrels with very stringent permit requirements for the removal of any endangered species from the wild. In fact, we are totally supportive of the permit procedures and only urge that Interior speed up the handling of such permit requests, especially those from institutions and individuals who have previously applied and have been granted such permits.

Our problems with Interior's interpretation and administration of the Endangered Species Act of 1973 are primarily directed to the permit procedure required for the movement of captive-born endangered species from one professionally operated zoological park to another. Such movement is done for the enhancement of endangered species and is often handled through professional animal dealers who are also members of our association.

Contrary to what the Department suggests, permit procedures continue to take entirely too long and have caused many zoological parks, aquariums, wildlife parks and oceanariums, as well as individuals, to separate breeding pairs of endangered species in captivity. Interior requires that zoological parks and/or individuals to first obtain an endangered species permit for the movement in a commercial activity of captive-born endangered species, even though the parents of such captiveborn species may have been in captivity or a controlled environment prior to December 28, 1973, the date the act was signed into law.

It has been and continues to be the contention of the American Association of Zoological Parks and Aquariums that the prohibition on the movement of captive-born endangered species has absolutely no bearing upon the extant wild populations of endangered species.

Interestingly, Mr. Chairman, it takes Interior as long to process a permit for the movement in a commercial activity of a captive-born endangered species as it does for them to issue a permit to remove an endangered species from the wild.

I would like to cite a few classic examples of what we feel is bureaucratic mishandling of permit requests. The Cincinnati Zoo made an application to purchase two captive-born Bengal tigers on January 6, 1977. The Federal Wildlife Permit Office did not request Cincinnati to provide additional information, so it was assumed that the application was in order.

However, such application was not published in the Federal Register until March 28, 1977. The permit was not issued until the 16th of June—nearly 5 months after the Federal Wildlife Permit Office received a complete and comprehensive application.

Please understand, Mr. Chairman, that Cincinnati's application was for the purchase of two captive-born Bengal tigers and was thus a noncontroversial permit application.

There are other examples we have submitted for the record.

The Department of Interior has finally, after nearly 3½ years, established captive self-sustaining populations which, in their stated opinion, greatly alleviates the permit requirements for zoological institutions, circuses and other holders of endangered species.

Interior suggests that the establishment of CSSP's will enhance the breeding activities of endangered species in captive environments and will allow persons obtaining permits under CSSP to traffic in such established animals with much less paperwork than has previously been required.

The American Association of Zoological Parks and Aquariums vehemently disagrees with Interior's contention regarding CSSP's.

Mr. Chairman, the Department of Interior issued a proposed rulemaking establishing CSSP's in the Federal Register on May 5, 1976, and did not publish a final rulemaking until June 1, 1977. Therefore, it took Interior 13 months to determine that 11 species held in captivity in the United States were eligible for CSSP status.

Moreover, by their own admission, Interior received only 52 comments on the proposed rulemaking. Further, they indicated the response was overwhelming that endangered species born in captivity should continue to be controlled by the Department of the Interior.

We seriously question the validity of that statement. Of the 52 responses, Interior states that 17 were submitted by zoos and zoological societies, 9 by bird breeders and 4 by circuses and related organizations and 1 by an animal dealer. These figures reflect that 31 of the 52 responses received were from zoos and related organizations.

Nearly every zoological park and aquarium director in this country believes that responsible zoological parks and aquariums and other responsible parties should be allowed to traffic in captive-born endangered species with no interference from or regulations by the Department of the Interior.

Interior further spells out permit requirements for persons wishing to traffic in captive self-sustaining populations in their published final rulemaking. These are detailed also in the statement. We won't go into that, other than to point out that some requirements for the permit applications, Mr. Chairman, are more stringent under CSSP than they are for taking an animal from the wild or trafficking in endangered or threatened species.

This is, Mr. Chairman, in the opinion of the Fish and Wildlife Service, a simplified procedure for freer movement of captive-born endangered species.

I remind you, Mr. Chairman, that after the receipt of such a permit, the permittee may only do so for up to 2 years, without a review, and then can traffic in those CSSP's only with other holders of CSSP permits.

To underscore the problems our members are having in complying with the requirements for a permit under Interior's CSSP provision, the very fine Riverbanks Zoological Park in Columbia, S.C., recently applied for a CSSP permit and was requested to furnish the Federal Wildlife Permit Office with photographs of the area in their zoo where CSSP-listed animals would be displayed.

It is interesting to note that the Riverbanks Zoological Park has received five endangered species permits since December 28, 1973, and has never been requested to furnish photographs of the display area. It is our contention that it is more difficult or perhaps as difficult to obtain a CSSP permit as it is to move an animal from the wild.

The Zoological Society of San Diego recently applied for a permit under the CSSP provision. It is my understanding that the permit application required 75 typewritten pages and more than 40 man-hours to complete—one application. Again, this is Interior's response to a simplified procedure for moving captive-born endangered species.

Assuming, Mr. Chairman, that it took the Department of Interior 13 months to establish 11 species as CSSP's, an elementary student in mathematics could determine from Interior's past record that it would take Interior nearly 10 years to determine the eligibility for CSSP status of those animals that we feel are eligible for such consideration.

The American Association of Zoological Parks and Aquariums is not here today to chastise employees of the U.S. Department of the Interior, because we feel that most of them are highly dedicated career employees who must interpret permit requirements as handed down to them in a regulatory scheme.

However, we urge members of this committee to review the tremendous timelag in the issuing of permits under the Endangered Species Act and, more importantly, to review the whole matter of CSSP.

We urge this committee to consider an amendment to the Endangered Species Act of 1973, as distasteful as it is for us to propose one, which would allow exemptions of any endangered or threatened species which was bred and born or hatched in captivity, provided that the owner shall have previously filed with the Secretary of the Interior a notice of intention to engage in interstate shipments of captive-born endangered species; that such notice of intention shall contain the following information: (1) A listing of all endangered or threatened species on hand at the time of filing the notice; (2) an agreement to keep a complete accounting of all acquisitions and dispositions of endangered or threatened species; (3) an agreement to file an annual report with the Secretary of Interior listing all transactions in endangered or threatened species; and (4) an agreement to commercially traffic in endangered or threatened species only with parties who have filed a similar notice of intention with the Secretary of Interior.

Mr. Chairman, our association is of the opinion that such an amendment would provide the necessary checks and balances to insure that captive-born endangered species were only trafficked in by responsible institutions or individuals and that such an amendment would provide the Department of the Interior with much more staff time and money to properly pursue the much-needed protection of endangered species in the wild and their rapidly diminishing habitats.

Mr. Chairman, I am also submitting a proposed amendment to deal with persons who would cause harm, steal, or remove endangered species held in captivity.

Thank you.

Senator WALLOP. Thank you very much, Mr. Wagner. We will accept those documents for the record. [See p. 652.]

Senator WALLOP. Mr. Thacker?

STATEMENT OF ROGER THACKER

Mr. THACKER. Mr. Chairman, I am Roger Thacker, president of the North American Falconers Association and the North American Peregrine Foundation. The former organization is dedicated to the wise conservation and management of our birds of prey and the furtherance of the field sport of falconry as a legal activity; while the latter is dedicated to raising funds for and is actively involved with the breeding of falcons in captivity for both scientific and recreational purposes. On behalf of both organizations I appreciate the opportunity to testify today.

These organizations that I speak on behalf of strongly supported the passage of the 1973 Endangered Species Act. However, today we feel that in several areas of this same act modifications are required if the basic intent of the act itself is to remain helpful to certain endangered species, and if we are not to become overwhelmed by redtape.

In particular, I refer to two native subspecies of the peregrine falcon which have been worked with for many years in falconry endeavors and which have also been listed as endangered by the U.S. Fish and Wildlife Service.

Since birds of prey have been trained for falconry, this bird has been of interest to falconers. Indeed, modern falconers were among the first to detect a significant decline in the wild populations because of pesticides contamination. While scientists were still trying to fathom this decline, it was falconers unaided by governmental sources who initiated captive breeding programs to avoid extirpation of the species.

Under controlled conditions, natural hazards which commonly take a 60-percent-plus toll on immature wild birds have been eliminated. Using techniques such as double clutching, artificial insemination, and photoperiod adjustments, we have been able to substantially increase productivity.

Due to falconers' efforts, 1977 may well see at least 110 peregrine falcons being bred in captivity in the United States alone, with in excess of 500 in the last several years in North America.

In addition, several hundred nonendangered raptors have been bred, thereby demonstrating the effectiveness of captive propagation. Without doubt these programs of captive raptor breeding have been the success story of the decade in wildlife conservation and have allowed us to commence reintroducing peregrine falcons into the wild in an extraordinary short period. From these results, we believe we can have a fully restored viable wild population within a maximum of 15 years.

I must emphasize very strongly that all the aforementioned falcons were bred by falconers, be they professionally biologists or private citizens. Contrary to some comments made at these hearings, much

of the successful breeding has been completed by individuals using their own time, money, and birds and under no contract to any government agency.

I must also point out that a large majority of breeders are operating on a private opposed to an institutional basis and that these individuals have again devoted their time, money, and birds to the conservation of the species and in the hope of developing a captive-bred population from which surplus birds could be used for recreational purposes. Audubon November 1975 carried an excellent article on these propagation and reintroduction activities.

Section 2(a)(5) of the Endangered Species Act speaks of "encouraging * * * interested parties * * * and a system of incentives to develop and maintain conservation programs." Yet we find in the Federal regulations promulgated under the authority of this act and the Migratory Bird Treaty Act that the recreational use of postact progeny of preact taken parent birds is forbidden.

Specifically section 9(2)(b) allows for the exclusion from the act of species held in captivity at the time of the effective date of the act. It is our position that this exclusion logically extends to any progeny of such parent stock.

Unfortunately, the Interior Department has not interpreted this section in the same manner, but has become increasingly restrictive over the total issue. However, in offering the original inclusion of section 9 from the floor of the Senate, Senator John Tunney stated: "I submit an amendment * * * to exempt from the prohibitions of this bill present owners of certain endangered species."

The basic question must be asked: Was it the intent to exempt only one generation? We feel not. To prohibit dedicated individuals from using captive bred progeny in falconry serves no constructive purpose. Such use is nonconsumptive of wild populations, and is considered by many biologists to be an important component of recovery plans for the peregrine falcon.

At best, such a prohibition will serve only to discourage and demotivate the very individuals whom the Congress intended to stimulate—those who have to date given generously and accomplished practically everything; those who have the knowledge, skills and determination to reestablish the endangered raptors.

For over 2 years now the Department has advised us that:

We are not opposed to the use of captive reared endangered sub-species of peregrines for falconry, provided such use does not jeopardize wild population. . . . It is our position that until a tamper-proof market is available . . . for identifying all captive produced raptors such use is prohibited.

These markers are now available.

In March 1977, on behalf of our organization, I made a request through the Director that captive-bred endangered raptors be allowed for falconry purposes as the markers were available and had been circulated to the individual States. In a reply dated April 11, 1977, we were advised to file for a captive self-sustaining species declaration as allowed in Federal Code regulation 17.1.

On June 1, 1977, the Federal Register, volume 42, in a captive self-sustaining declaration concerning several exotic cats and pheasant, the following statement was made:

The Service has decided not to include as a CSSP any endangered species that is native to the United States. We feel this would weaken the protection afforded to such species, since animals unlawfully captured in the wild might be falsely described as being a CSSP.

So the full circle has been completed, without any of the agreed on relief taking place. Support for removal of captive bred endangered raptor species from the jurisdiction of the Endangered Species Act, or allowances for their use in falconry, is widespread.

The following organizations have made such recommendations or motions through various committees of your total organization. There is a list of organizations that have supported this, which is in the full record that I have submitted.

It should also be noted that in more than one congressional hearing the Department has made public statements supporting this issue, although its actions seemingly move in the opposite direction. As early as 1974, in the course of Mr. Greenwalt's confirmation hearings, Senator Jackson raised a question: "Could captively bred endangered species be used for falconry?" In his response, Mr. Greenwalt indicated he hoped to amend the Endangered Species Act by regulation and thus exempt captive-bred populations from certain prohibited acts.

In oversight hearings before the Senate Subcommittee on Environment on May 6, 1976, the same question was raised. Mr. Parsons of the Department of the Interior answered the question in the following manner: "We are working on draft falconry propagation regulations . . . and I am sure the issue of the treatment of endangered raptors will come up, too."

I am afraid it never has in a positive manner as far as we are concerned.

At these same hearings the impression was also given that the holdup of issuance of regulations was complications in first the Endangered Species Act and then the Migratory Bird Treaty Act. We do not believe this is accurate. The holdup is only at the departmental level.

We are advised that such regulations are fully compatible with the intent of the Endangered Species Act and that authority to issue regulations does exist under the Migratory Bird Treaty Act.

In conclusion, because we feel that the intent of section 9 of the Endangered Species Act in regard to postact captive-bred progeny of preact parents is unclear, because the actions of the Fish and Wildlife Service in this issue have become overrestrictive and have reached a degree where such actions may be detrimental to the act itself by removing the incentives to breed endangered species, and because a group of persons are being restricted unnecessarily in an issue that will have no detrimental effect on wild populations, we ask that Congress re-examine pertinent sections of the act and either remove totally or make allowances for the use of captive-bred endangered species for recreational purposes.

We also request that at the same time Congress examine the extent of law enforcement influence and the moneys devoted thereto for law enforcement purposes under the auspices of the Endangered Species Act. We certainly encourage programs of enforcement as a portion of

a total picture but believe at this time that perhaps in regard to raptors, and I can only speak for raptors, too much emphasis is being placed in this direction and not enough on management practices, such as research and the actual breeding techniques.

Let us concentrate on getting the birds into the wild so that there is something to protect instead of, as it appears to us, excessive amounts of moneys being spent on projects which often are only understandable to the agents themselves, with seemingly negligible results. We would be happy to expand on this issue if appropriate.

Once again, Mr. Chairman, I appreciate this opportunity of testifying. Suggested amendments and other exhibits pertaining to these issues are attached to the full statement which I have submitted.

Thank you very much.

Senator WALLOP. Thank you very much, Mr. Thacker. All the documents will be submitted for the record. [See p. 667.]

Mr. Oldfield?

STATEMENT OF ANDREW M. OLDFIELD

Mr. OLDFIELD. Mr. Chairman, my name is Andrew M. Oldfield. I am immediate past president of and represent Safari Club International. In the interest of time, I will make a brief summary statement here, and request that our full testimony be accepted for inclusion in the record.

Senator WALLOP. It will be done. [See p. 692.]

Mr. OLDFIELD. Thank you.

Safari Club International is a worldwide organization composed of more than 500,000 regular, associate and affiliate members, representing a cross-section of the much larger national and international fraternity of hunters. We have 33 active chapters in Canada and the United States and 1 in Europe.

Safari Club International supports conservation efforts throughout the world. We are particularly proud of our Safari Club International Conservation Fund, used solely for conservation and education. We fund wildlife research projects where they are needed and other funds are not available; and we fund the American wildlife leadership schools which provide young people with the information and background they will need to make decisions about conservation and environmental issues.

Safari Club International supports the objectives of the Endangered Species Act of 1973, even as it supported the acts of 1966 and 1969. The act of 1969 first called for a listing of worldwide endangered species and prohibited their importation.

However, the threat of extinction had to apply to the species or subspecies throughout its range. This limitation was improved by the Endangered Species Act of 1973 which allows the Secretary to consolidate the foreign and native lists, and to subdivide the single list to show what animals, in which areas, are either endangered or threatened. It requires the Secretary to "specify with regard to each species over what portion of its range it is endangered or threatened." This requirement added a beneficial precision to the act.

We believe the committee will understand our concern with the fair administration of this particular provision of the act. Our membership is primarily sportsmen who hunt throughout the world for trophy-quality game animals.

We support rational wildlife management in order to perpetuate game species and their habitats. We do not wish to be party to the extinction of any type of species; and, conversely, we do not wish to be denied the right to bring into the United States any trophy of a non-endangered species, legally taken in another country, by the pressures of groups whose persuasion is against hunting.

For example, a keen debate had developed over the worldwide status of spotted cats, which was true before passage of the 1969 act. The American, and to some extent the European, African and Asian public was deluged with atrocity reports from nature writers, the press and the advertising media, each reporting one another and all quoting some impeccable authority who seemed to have had more imagination than certified knowledge. This avalanche of misinformation convinced the American public that all spotted cats throughout the world were facing certain and immediate extinction.

Following passage of the act of 1969, the Fish and Wildlife Service contacted wildlife agencies in most of Latin America, Africa and Asia to obtain information on the status of presumed endangered species in those countries.

Based on these contacts, a review of the literature and various conventions, personal interviews with wildlife experts of other countries, with FAO wildlife biologists and competent scientists in the United States who had worked or studied abroad, an examination of files and published data of the IUCN, and a review of commercial data, the Service prepared a list of foreign endangered species which contained only three subspecies of the leopard.

There was an immediate storm of protest because all the spotted cats were not listed, and on March 30, 1972, the leopard as a full species was listed as endangered.

American sportsmen who hunted in Africa and Asia and who were knowledgeable about wildlife conditions there were unbelieving. Wildlife experts of several countries protested the action to Interior, attesting that leopards were not endangered in their countries and could be legally hunted and exported.

Interior replied to them and to American sportsmen with letters that urged support for a new bill that would allow more flexibility by establishing a threatened category, as well as the existing endangered category. "Selective regulation could be applied," they said, and "certain types of importation could be barred while others were allowed; * * * In the case of an animal which produces a harvestable surplus in countries where an effective wildlife management program exists, it could be possible to allow the importation of lawfully taken sport trophies while banning imports for commercial products."

Congressman Dingell's testimony in support of the bill was reassuring—Congressional Record, September 18, 1973, page H8019:

* * * It is a bill which has been carefully drafted to encourage State and foreign governments to develop healthy stocks of animals occurring naturally within their

borders * * * I have been informed by the Department of the Interior that they will carefully review the status of animal stocks in foreign countries and that where non-endangered trophy animals are being managed in such a way as to assure their continued and healthy existence, no barriers will be placed upon the continued harvesting of these animals by the government.

The argument for flexibility was persuasive and Safari Club International supported passage of the bill which ultimately became the Endangered Species Act of 1973.

Mr. Chairman, these promises were not kept. There has been no evidence of flexibility. The American sportsmen were misled and the U.S. Government stands in ridicule before the world's wildlife biologists.

Several field studies since 1972 have demonstrated that the leopard was not then and is not now threatened with extinction throughout its range. The grave threat it had faced in some regions of the world in the mid- and late-1960's from illegal trapping for the fur industry had been relieved, as far as the United States was concerned, by enforcement of the Lacey Act. You heard testimony last week that it was enforcement of the Lacey Act that also turned the tide in favor of the American alligator.

The leopard should not have been listed under the provisions of the 1969 act; and under the provisions of the 1973 act, the listing should specify over what portion of its range it is endangered or threatened.

Safari Club International has made every reasonable effort possible to provide information to correct the listing, and has sought relief through formal petition—but as yet to no avail.

Another listing that concerns us is the recent placement of the lechwe on the endangered species list. Kobus lechwe Gray, 1850, appeared on the June 14, 1976, listing. Three races are recognized and none of the three races are listed as endangered in the most authoritative source available—the IUCN Red Data Book, volume I, Mammals.

Though admittedly reduced in number from early abundance, it cannot be considered in danger of extinction. Population estimates in 1971 totaled more than 100,000 individuals spread from northern South-West Africa and Botswana, the Caprivi Strip, southeastern Angola and Zambia into southern Zaire—with many large herds contained in national parks or other protected areas. The lechwe may be legally taken in Africa but may not be legally imported into the United States.

As a final example, the bontebok of South Africa, *Damaliscus dorcas*, Pallas, 1776, a localized subspecies related to the more widely distributed and still abundant blesbok, was added to the endangered list on June 14, 1976. It was declared out of danger by the IUCN years ago and rates a green sheet for recovery in the Red Data Book. It is given complete protection in one national park, named in its honor, and in two nature reserves. South African game regulations permit trophy animals to be taken from managed herds on private ranches, but they cannot be imported into the United States.

We listened as Assistant Secretary of the Interior Robert L. Herbst testified before you on July 20, 1977, that the Endangered Species Act is working well. We are inclined to agree that in many respects it functions as the Congress intended it should. We are pleased with

Assistant Secretary Herbst's fresh attitude and interpretation of this act and are looking for considerable improvement under his administration.

Specifically, it would seem reasonable to expect honest errors in the listings to be corrected. No one is infallible. It would also appear that the issuance of valid hunting permits, even on a limited basis, should be considered *prima facie* evidence that the issuing country does not consider that animal endangered in that part of its range.

Mr. Chairman, I thank you for the opportunity to give this testimony.

Senator WALLOP. Thank you very much, Mr. Oldfield. Your entire statement will be submitted in the record.

Mr. Brzoznowski?

STATEMENT OF JULIAN BRZOZNOWSKI

Mr. BRZOZNOWSKI. Mr. Chairman, my name is Julian Brzoznowski. I am a cattle rancher in northern Minnesota and am here today to present testimony on the Endangered Species Act on behalf of the American National Cattlemen's Association, the National Livestock Feeders Association, and the Public Lands Council.

These three organizations represent a combined constituency of both private landowners and public land-grazing permittees who are equally affected and alarmed by the current Endangered Species Act implementation.

I have some pictures here I would like you to examine during my testimony. However, I would like them returned.

I would like to begin by summarizing some of the inequities we see in the act, and then I will offer the story of my own personal experiences with the Endangered Species Act and its effect on my ranching operation.

Section 7 of the act is one of the major sections of the law which merits extensive review and revision through amendments. Section 7 speaks to the Secretary's mandate and authority to work with other Federal departments and agencies for the conservation of listed species through taking actions necessary to insure that activities funded or authorized by those departments and agencies do not result in threats to the continuance of listed species or result in the destruction or modification of critical habitats.

The words in this section may seem harmless, but the implication and actual meaning translates into a potential loss of private property rights and harassment of private landowners on their private property. This is not a radical interpretation of section 7. I know; I have had personal experience with its application.

My dad raised cattle in northern Minnesota for approximately 50 years. I purchased the farm from him in 1961 and have been raising cattle as my major crop and form of income.

Prior to the passage of the act of 1973, and the listing of the eastern timber wolf as endangered, my cattle losses to wolf predation were nil. Trappers were allowed to take wolves for hides. Occasionally the State would offer bounties under a State management and control program.

In 1973 the wolf in Minnesota was neither endangered or threatened. They were managed and controlled so that people and wolves could live in relative harmony with each other.

However in 1974 following their designation as endangered wolf populations increased considerably. Simultaneously I began to experience cattle losses to wolves. In 1974 I lost 3 calves to timber wolves; in 1975, 7; last year I lost 16 head—6 cows, and several yearlings and calves. So far this year I have lost two calves to wolves.

The calf and cattle kills have been examined by game wardens and Federal trappers. They all verified them as wolf kills.

In 1975 I asked for assistance from the Fish and Wildlife Service requesting trappers to capture and relocate the wolves that were creating my losses. The Fish and Wildlife Service told me they didn't have available manpower at that time and left me to sit and watch the wolves eat my cattle, think about those losses and the pressure it put on me to provide a living for my wife and three children.

I was told clearly by F&W that if I harmed or harassed any wolves trying to protect my property, I would be subject to 1 year in jail or \$20,000 in fines, or both. I'm not even allowed to chase them off.

In May 1976, I experienced increased losses to wolves, but this time I was told that the Fish and Wildlife Service had initiated a capture program to manage the wolves.

A trapper was sent to catch some of the wolves. They had flown over the area the previous winter, and told me that there were four or five wolves in my area. Well, 2 weeks later they had caught four wolves. Then Fish and Wildlife pulled the trapper out and told me that would take care of the problem.

The following week I lost another six head of cattle. When I contacted the Service I was told they didn't have personnel to handle my case. They had sent the trapper that was working for me to another farm area.

I called my Congressman, Representative Jim Oberstar. He called the Fish and Wildlife Service. They responded by getting me a trapper out of Texas. He came up looking like a cowboy. I didn't figure he was a trapper, but he turned out to be a real good trapper. He caught 20 wolves in 17 days in or near my pasture.

In a matter of a week, he had my pasture surrounded with traps to keep the wolves from getting in and killing the cattle. Then the Federal Fish and Wildlife Service pulled him out because he was catching too many wolves. Within a week after he pulled out, I lost more cattle. So Fish and Wildlife sent in another trapper. He captured seven more wolves.

This summer they sent a trapper to me who has captured 15 more wolves in the last 3 weeks in or near my pasture.

The first 30 wolves caught were released 70 miles from my farm in the Superior National Forest. Then the Forest Service stopped Fish and Wildlife from relocating wolves there because the wolves were decimating the white-tailed deer population and threatening the remainder of the national forest herd.

So now all the live-trapped wolves in Minnesota are being released 25 miles from my farm—about a 2-hour walk for the wolves.

As a citizen, I have to sit back and just watch the wolves come in and harm my cattle. I am not allowed to do anything to protect my property.

I ask, is a critical habitat my herd of cattle? Do you think it is right and expected of me, because of the Endangered Species Act, to give up my livelihood or accept losses with compensation?

I don't. I think the act ought to be changed. The act should be changed to protect man from animals as well as to protect animals from man. It is awful that I have to feel the way I do about wolves. I don't want them wiped out, but I do want them controlled. In fact, under the Endangered Species Act, there is no budget allocation for control of the endangered species.

On behalf of the American National Cattlemen's Association and the National Livestock Feeders Association and the Public Lands Council, I would like to offer the following recommendations for changes in the act.

Section 7 of the act must be amended to eliminate the potential authority to harass private property owners and deny them personal property protection rights.

Further, section 5, land acquisition, must be amended to eliminate authority for the "taking" of private lands for preservation of listed species unless with the expressed consent of the landowner.

The act should be amended to make it exceedingly clear that an environmental impact statement must be completed on any proposed endangered or threatened species preservation activity that must assess in detail the economic, property, and human impacts of such a program. This EIS must justify a preservation program; not only assessing man's activities and effects on specie habitat, but the specie's activity and habitat effect on man's activities.

The act should be amended to delete provisions which require maintenance of a species and its habitat in an effort to prolong or by-pass a natural extinction process.

The act should be amended to eliminate preservation programs which unrealistically protect and propagate "pest" species—for example, walking catfish—and should instead allow for a representation of the species under controlled management in an area which clearly poses no threat to other species in the ecosystem, including man and his activities.

The act should be amended to clearly state that the act does not supersede existing land use and multiple-use laws. Programs implemented under the act must be integrated with other land-use programs in a considered, justified, and balanced manner consistent with existing laws and programs.

Mr. Chairman, I thank you for this chance to tell my story and present the positions of three associations on the Endangered Species Act during these oversight hearings. On behalf of the ANCA, NFLA, and PLC, I would like to submit further documentation concerning inequities in the act and additional recommendations for the oversight hearing record.

Thank you, Mr. Chairman.

Senator WALLOR. Thank you very much, Mr. Brzoznowski. [Prepared statement appears at p. 717.]

Mr. Liebergall?

STATEMENT OF JOSEPH E. POSER

Mr. POSER. Mr. Chairman, Mr. Liebergall was unable to attend today. I am Joseph E. Poser, past president of the American Fur Merchants Association. I would like to place in the record a detailed statement in regard to the act. [See p. 730.]

Our association represents a large number of fur dealers throughout the United States. As the fur industry is largely centered in New York City, the businesses of most of our members are located there.

I am pleased to say that this association publicly supported the Endangered Species Act of 1973 and prior legislation which protects wildlife. We endorse and support wildlife management practices.

In that regard, I would like to refer briefly to testimony that was given on a previous panel by Mrs. Stevens. She made quite strong objections to exceptions being made for, among others, furriers. I would like to state that no exceptions have been sought by furriers, no exceptions have been given to furriers, for the use or importation of endangered species.

We endorse and support wildlife management practices. Our livelihood is obtained from this resource.

Our problems with the Endangered Species Act and the Lacey Act fall in part into the legislative area and in part in the area of the administration of the act. We will review with you today only those problems that we believe are in the legislative area.

I will recapitulate for you the main points in our statement. We feel that there is a need for statutory package marking requirements. Under the present system, the use of symbols has helped to alleviate the problem of theft. But since this is an administrative problem, and the administrators have changed from time to time, a definite marking system should be made a part of the statute.

Notice of seizure or withholding of clearance is another serious problem in our industry when the notice is not given soon enough. The present law requires that the Fish and Wildlife Service directly give notice to the owner or consignee "as soon as practicable following its seizure."

We believe the term "practicable" needs specific limits. We believe that it was the intent of Congress to set such limits. Now this becomes more important than ever before. Spoilage of raw fur skins begins rapidly in nonrefrigerated storage.

We recommend the act be amended to require prompt notification of seizure or delivery delays initiated by the Fish and Wildlife Service so as to allow investigation of possible violations. We urge the adoption of legislative requirements for the formation of an industry advisory committee. The advisory committee could do much to (a) establish informed standards for warehouse storage of seized furs; (b) provide a means of periodic review of such standards based on experience; and (c) foster a spirit of cooperation and understanding between the Government, conservation groups, the fur industry, and possibly other affected industries and thus aid in the solution to enforcement, licensing, marking, and other problems.

The bonding of seized goods is provided for in title 50 of the present legislation and Federal regulations. However, there is no regula-

tion on conditions to be met by the bond or what is needed for the release of seized fur skins.

The law should be amended to provide for the ability to sell fur skins. Under the present law, when an animal is placed on the endangered species list, all traffic in that fur is stopped. Even though the fur is purchased prior to the listing, it cannot be sold.

Provision should be made in the law for merchants caught in this position to dispose of the goods without penalty. If such an amendment is not adopted, legitimately owned furs, taken before the species is added to the list, may be rendered completely worthless.

I am grateful for the opportunity to appear before this committee.

Now I would like to introduce to you Mr. Gerald Greenstein, an associate of one of the leading forwarding companies and specialists in the handling of furs. I think you would be interested in this testimony and the difficulty he faces.

STATEMENT OF GERALD GREENSTEIN

Mr. GREENSTEIN. Thank you, Mr. Poser. I am Gerald Greenstein from the Pro-Service Forwarding Co. I have a statement.

We deal in fur forwarding in New York. The Fish and Wildlife Service agents at JFK have cooperated and served the best interest of all parties concerned. Although we feel they are understaffed, our primary area of concern is the availability of additional agents for this important governmental agency.

The Fish and Wildlife Service validation desk at JFK for import and export is opened from 8:30 a.m. until 4 p.m. from Monday through Friday.

Although the validation desk is closed at 4 p.m., an agent is asked to work overtime until approximately 6 p.m. This agent will attend the various airlines between 4 and 6 p.m. to validate late arrivals at the international carriers.

During the peak fur season, September through May, it is impossible for this one agent to attend all carriers—there are over 31 of them in Kennedy alone—concerned, and some shipments are left behind until the next evening's departure.

Also, some carriers will not validate wildlife certificates, making us bring back the shipments to the shipper or to our warehouse, which is a problem.

Furs are designated by insurance companies as target merchandise. If they are left behind, the risk of theft is that much higher.

As stated before, raw furs are perishable. Fur garments can be crushed if left in cartons for extended periods of time. And there have been insurance claims.

We suggest being on the frontline, as we say—living with the regulations, which are proper—that additional agents are to be made available during the peak fur season, September through May, and that the validation desk extend its hours, as others do at JFK where you are exporting goods around the clock.

As an international freight forwarder and custom broker, we feel that this will be a definite help both to the local fish and wildlife service and the importer and exporter.

Thank you.

Senator WALLOP. Thank you, Mr. Greenstein.

Again I want to thank the panel for your patience and indulgence. I do have a few questions that come to mind. There will be others that I will want to ask and other members of the committee may want to ask later.

Mr. Haggard, in your statement you referred to the kinds of activities that were hindered or otherwise stopped, but they are curtailed or they are stopped by the application of the Endangered Species Act. Could you in any way be more specific than just saying that they exist, other than the ones that have been obvious targets of this hearing?

Mr. HAGGARD. Yes, Mr. Chairman. Of course, this can be given just by example, but some of the examples that I am aware of include a proposed mine development in Idaho which is within the proposed grizzly bear critical habitat, where the Forest Service, in considering the mine development plan, had advised the particular company involved that it appeared if anything is going to create a problem and perhaps prevent the development, it will be its being in the critical habitat.

Senator WALLOP. Is that the grizzly bear habitat?

Mr. HAGGARD. Yes, Mr. Chairman.

Going away from the commercial enterprise and into the curiously competing game management conflicts which have occurred—just the day before yesterday when I was in Flagstaff, Ariz., the Fish and Game Department happened to mention to me that a fish control project had been proposed for a lake near that city to eliminate the trash fish and restock the lake with trout and catfish, sport fish.

They have received a protest from a number of college professors and instructors at the university. They are objecting to the fish kill because this would temporarily modify the habitat of the bald eagle in that area, which, in the literal terms of section 7 would be prohibited. But the Fish and Game Department had considered that problem even before they made the proposal and decided the eagles would simply go to other lakes.

There are hundreds of lakes around Flagstaff that furnish food for the eagle in that area. The suspicion is that this is an example of another misuse of the act, that the particular people who are objecting find that this particular lake is nearest their homes; they can walk or drive just a mile or two to the lake to watch the eagles; whereas, if the fish were eliminated in the area, it would cause the eagles to migrate to other nearby lakes.

There are other examples, but I won't take the time of the committee to mention them, unless you would care to go into them.

Senator WALLOP. What I would like is if you would care at some point to expound on that for the record, with some specific instances we might use to view the act and any amendments that might be proposed for it.

Mr. HAGGARD. I would be happy to, Mr. Chairman.

Senator WALLOP. Mr. Brzoznowski, I think you heard members of the previous panel refer to the fact that the Endangered Species Act has no effect upon private property. Would you agree with that view in your experience?

Mr. BRZOZNOWSKI. It sure does have an effect on private property. I own my property and I have been raising cattle, like I said. It is my

main livelihood. I have raised cattle all my life. But I can't go out there on my own property and if I see a wolf eating a cow, I can't shoot it; I can't even scare it off or else I am subject to that fine. If I go ahead and do that, I am locked up. I can't protect my own property. There are now rights as far as the act is now.

Senator WALLOP. Is that area in which you live designated as a critical habitat, or is it just the fact the wolf itself is considered endangered?

Mr. BRZOZNOWSKI. Yes. It is not designated as far as I know as a critical habitat. It is just that there are so many wolves in there, and under the Endangered Species Act they are protected no matter where they are.

Senator WALLOP. Mr. Herbst, before he became what he is, was quite sympathetic to that problem, was he not?

Mr. BRZOZNOWSKI. Right. He at that time stated that there needed to be controls on the wolf in Minnesota.

Senator WALLOP. Have you had any indication from him that the Fish and Wildlife Service might be modifying their approach?

Mr. BRZOZNOWSKI. They have tried to change. They have a proposal now to change it from endangered to threatened. But as far as any other program, no, I haven't.

Senator WALLOP. I was sort of interested in your problem because yours is much worse than ours. We have an imaginary wolf that runs around Wyoming and Montana. He is truly endangered. He is kind of like the wolves I used to tell my father about when I was a little boy.

But we were told that the Fish and Wildlife Service had found a species of this wolf in our area and had found them killing ranchers' cattle. I am waiting for confirmation of that, because I find it difficult to believe we wouldn't have heard about it through our local livestock men and others.

If it were true, I am sure our people would feel much the same as you. Toby Cooper of the Environmental Defense Fund said in an article in the Washington Post, if a rancher can't handle the timber wolf problems, he should get out of agriculture in the area.

Could you tell me how long your family has been there?

Mr. BRZOZNOWSKI. My dad started farming there in 1920. As I said in my testimony, since 1920 to 1973, there is no case that we know of that we ever lost a cow or a calf or anything to a wolf. But at that time the State had control; they had a trapping program. So people could trap them for furs and so forth, and they were never wiped out. They were not close to being wiped out, because in a matter of 2 years their numbers just inflated, I believe.

Just in my place alone in 3 months of trapping, the Federal trappers, under their program now, have caught almost 50 wolves within a real small area, say about 2 square miles.

Senator WALLOP. Those wolves they trapped, you said it is only 7 miles away they are taken?

Mr. BRZOZNOWSKI. Between 20 and 30 miles away.

Senator WALLOP. Is there agriculture there?

Mr. BRZOZNOWSKI. They are taking them into a part of the Superior National Forest. There is no agriculture right at that immediate spot.

But the wolves do not stay there because there is nothing for them to eat. So they move out to the other farmers' yards in that direction. Some of them are coming back and I am catching them over on my land again. These are eartagged. They know where they catch them. But there is no compensation on my part for feeding the wolves.

Senator WALLOP. It does seem remarkably unfair.

Mr. BRZOZNOWSKI. It sure does.

Senator WALLOP. It does invade the private property rights to the extent you can't continue to exist. How long has agriculture been in that area?

Mr. BRZOZNOWSKI. Agriculture has been there as long as Minnesota has been a State. That is quite a while.

Senator WALLOP. If they take them from you and move them 20 miles, they must be depositing them fairly close to someone else.

Mr. BRZOZNOWSKI. Well, it is still part of the Superior National Forest where there are no real farms right in that area. But within a few miles, just in all directions of that, within 20 miles—my place is 20, 25 miles—there are other farmers who are 10 miles away and 15 miles away. These wolves are moving into that area and they are having the losses, too. So the program of just moving the wolves doesn't solve anything.

Senator WALLOP. Will Canada take them?

Mr. BRZOZNOWSKI. Canada doesn't want them, and nobody else wants them either. Michigan got four wolves and they didn't want them there and something happened to them under the program of transplanting.

Senator, I don't advocate wiping them out. I just advocate a control program.

Senator WALLOP. I don't think that anybody would even want to wipe out our imaginary wolf out there. It is too much fun to talk about it.

It is a problem. It seems to me that somewhere along the line the dose of reason would have to get in there. If it were to last 4 or 5 years, it would seem to me then there should be some kind of compensation program developed on it.

Mr. BRZOZNOWSKI. I agree.

Senator WALLOP. Mr. Thacker, with regard to the captive falcons, are they used either in any instance to rear wild eggs or to be introduced into the wild themselves?

Mr. THACKER. The majority of the birds that have been reared in captivity go in two directions. One is into the wild for reintroduction purposes, if they are an endangered species; or second, they are maintained in the project for further propagation.

So what we have got is really the reversed pyramid effect whereby every year our yield increases radically, as in the last 5 years, but with total inability to move these birds around to further propagate them and further expand the species.

We have private individuals right now who are prepared to put up their own cash, time, facilities, and everything else to raise these birds but just can't do it.

Senator WALLOP. You have heard other people this morning, and we have heard other people in previous hearings, talk about the

inflexibility and the consultations and other things it has brought about. Have you found it to be inflexible in that line?

Mr. THACKER. I should preface my remarks by saying we have enjoyed a very good relationship with the Department of the Interior generally. We always found them receptive to well-laid plans that benefit the species. I sincerely believe that this captive breeding by private individuals does benefit the species. That is the key to the whole situation.

But on this one question of endangered species in captive-bred projects, the attachments to my statement for the record, will I believe demonstrate there has just been a solid blank wall.

Senator WALLOP. The consultation process has not taken place?

Mr. THACKER. Well, there seems to have been a directional lean, and fears within the Department mainly from law enforcement, causing an overrestrictive attitude generally.

We find it very frustrating, for example, after years of consultation work with the Fish and Wildlife Service, in developing an individual raptor marker for law enforcement purposes—for your information, every bird kept in captivity carries a tamper proof marker around its leg—to allow us the use of captively bred endangered species—that in fact it does not and that seemingly we were led up a blind path.

Senator WALLOP. Who applies it?

Mr. THACKER. Federal authorities apply it through the State wildlife agencies; in coordination with these agencies.

We were assured once this marker was in place, there would be no problem, that the Fish and Wildlife Service would be very receptive to the idea of captive-bred endangered species for recreational purposes.

In applying through the captive self-sustaining regulations we find that was modified in a June 1 promulgation. Quite frankly, I view that with great concern because I believe this to be detrimental to the basic intent of the Endangered Species Act.

What we are saying is you can achieve a captive self-sustaining species standards for exotic species, but you can't achieve it for our own native species—even though the President in an executive order that was published a few days before it seemed to us encouraged the reverse action. So it seems we are moving in opposite directions.

Senator WALLOP. I understand that Mr. Rick Parsons of the Fish and Wildlife Service Law Enforcement Division is in the audience. Is that correct?

Would you care to comment at all? I don't wish to put you on if you feel as though you shouldn't. Would you care to comment on the kinds of problems Mr. Brzoznowski has and Mr. Thacker refers to?

Mr. PARSONS. I think I should clarify one thing. I am no longer with the Law Enforcement Division, but I am with the Fish and Wildlife Service. I can comment briefly on some of these questions.

On the wolf question, I really don't have any comment on that.

As far as the falcon question, it is true that in our final rulemaking on captive self-sustaining populations we did decide not to include native populations because of what we felt was another danger to populations through the use of this concept. There are other approaches that are possible for the falcon problem. We are looking at them. But we feel we have to balance the various interests.

I am not sure that we are in complete agreement with everything Mr. Thacker says about no danger to the wild populations from this breeding program. It is not an issue we are deaf to. We are considering it. But we feel there are some major problems, especially when you get to the animal like the peregrine falcon.

I am afraid there is not much more I am prepared to say now.

Senator WALLOP. What is the danger?

Mr. PARSONS. The danger, to put it very simply, is stealing of falcons from the wild in the stage of an age or the stage of a very young bird. Some of our own experts on raptors say even the marker could not prevent that from happening because the marker cannot be placed on the bird until it is 4 days old.

Also, as I understand it, and I could be wrong on this, the marker hasn't been developed. We have one now which is still being made, in the final stage of being tested, that looks about as tamperproof as we are going to get, according to some people. I assume that is the one we are going to accept as the marker.

Senator WALLOP. How long would these people expect to have to wait before there was some flexibility? The testimony of Mr. Thacker over here is the same, that in point of fact it seems to be impeding rather than enhancing the protection of certain species.

Mr. PARSONS. For one thing, that is assuming you accept the premise that those activities would in fact enhance the species. I think a further look into that, there is some debate on certain points. I don't think it is something that can be accepted on its face.

We try to be flexible within our limitations. Many of our limitations are the ability to do all the various jobs in the Endangered Species Act we can. I know the committee has heard that in the past oversight hearings. I am sure it is a story heard from every other Government agency, but in fact it is true.

Sometimes I feel what appears to some people to be a lack of flexibility is simply we disagree with the interests. They are contending they need particular treatment. Other times I think we are moving in directions that are flexible.

We have an ongoing project with AAZPA which Mr. Wagner represents to evaluate our approach on captive populations of zoo animals in particular. They don't feel that our approach is a proper one. They have suggested another one in the amendments. We feel our CSSP approach needs some more time to be evaluated.

We agree that the 13 months to turn out the final regulations is inexcusable. I know the reasons for it. They don't really make any difference. I think we have found ourselves hampered in trying to get that done, and other things, with our lack of people. There have been many complaints about the permit, for instance. At the present time my staff has its branch chief and two biologists. We are faced with an increasing workload on permits.

Yet I don't think a reasonable look at the permit requirements indicates that a lot of those permits should be done away with or thrown out. Many of them we feel are necessary for the protection of the species which the act intends.

So sometimes we find ourselves caught in a box of simply lack of time. This results in what appears to be inflexibility. Other times I am

afraid we simply don't agree that the particular desire needs to be met.

The overriding requirements of the act are to enhance the endangered populations in the wild. It really I think depends on the particular issue. We are quite prepared to talk to the committee or any of these people, as we have in the past, on the specifics of the particular issues rather than in generalities.

Mr. THACKER. Mr. Chairman, may I make a brief reply to the comment?

Senator WALLOP. Yes.

Mr. THACKER. Three points. First, the marker we have been talking about is not in the development stage. It is finalized and in circulation. So it is actually going on. In fact my State, the State of Washington, is installing these markers by July 31. So the marker is now a finished product.

Second, on the question of the removal of birds from the wild, and this is one of the issues—I am really glad it was raised because I would like to address it in the open.

Mr. Herbst in his statement last Thursday gave figures for convictions under the Endangered Species Act. It was 209 convictions since 1976 under the Endangered Species Act.

I have two questions which I would like specifically answered. One, how many of these convictions concerned endangered raptors? Two, how many of these convictions concerned licensed falconers?

We have heard for years what we feel to be the “bugaboo” of falconers here and falconers there taking birds illegally from the wild. But in the many years I have been in falconry serving with our organization, and individually the work I have done; though I cannot sit here and say that all and every falconer is honest, because there are always dishonest individuals—I just can't accept that there is the extent of lawbreaking that unfortunately seems to be the impression we are given out of the Law Enforcement Division of the Interior Department.

Senator WALLOP. I would like to just interject a question right there. Would the apparent inflexibility and the inability of you to move your captive-born birds in effect enhance the value of wild falcons rather than diminish the value of them?

In other words, if you can't sell the product that you have and your population is growing, but is intact and not able to be moved, wouldn't that make birds in the wild more valuable?

Mr. THACKER. Mr. Chairman, I don't think we are particularly concerned at this point in time with the stealing of these birds, and if we were allowed the freedom to breed these birds in captivity and use them why would anyone want to take them from the wild.

Senator WALLOP. But others are.

Mr. THACKER. Yes.

Senator WALLOP. Those who would be outside of the business.

Mr. THACKER. Not in the falconry field. To obtain these birds, one has to go through very extensive examination and certification, inspection of facilities, take a written test, all kinds of requirements.

I think the important thing is the impression has been given at these hearings that all of the work being done with the peregrine falcon is

being carried out by the Federal Government. I would take a contrary view and say that the majority of it from the breeding to the release and site attendant question is being completed by individuals from the falconry field, with the expertise, who before the Federal Government got into the scene, made and are continuing to make major contributions to maintaining these birds.

All these individuals are seeking is a small percentage of captive-bred—not wild—but “captive-bred” progeny to be able to use them for the sport of falconry.

Senator WALLOP. I take it you feel, then, by your statements, that the actions of the Fish and Wildlife Service are contrary to the statements.

Mr. THACKER. As I would sit here today, I would have to say contrary to the benefit of the species. Because by denying these individuals this option of their usage, we are drying up the ability very rapidly.

When the government agencies first got interested; and I was at the Peregrine Conference in 1974 in Connecticut where such personnel were saying, “It would take 90 years to get peregrine falcons back into the wild!” In 3 years however we are at a practical point of putting birds back into the wild; captive-bred birds are now returning to eyrie sites where they have been released to put a viable population in the wild.

This is only because of one reason: Because of the interest and the work performed by the private individuals, and that is falconers. I will happily stand anywhere on the hill and say that.

Senator WALLOP. This will be the last question.

Mr. Oldfield, in your testimony you refer to the section of the Act which requires the Secretary to specify with respect to each species over what portion of its range it is endangered or threatened. Am I understanding that you are saying that they are not really using that clause as a guiding light?

Mr. OLDFIELD. That is correct, sir. The entire species, no matter what it is—a leopard, jaguar, tiger, in some cases the lechwe, the bontebok—is declared on the endangered species list and there is no way in this United States that that animal can be taken by a hunter of the United States and brought into this country. There is no provision for that. The implication is that an endangered animal is endangered everywhere.

There are, as I said, estimates of a hundred thousand lechwe in South Africa. The game departments of South Africa issue permits for the taking of that animal. They give a hunter an export permit.

In many cases in this past year, since June of last year, those animals which have been brought into this country were imported without the knowledge of the hunter that that animal is on the endangered species list. That animal is seized by Customs.

We have dozens, and I mean dozens of cases in Interior right now where these animals are being held and in some cases part of the convictions Mr. Herbst was talking about last week were people who admitted they brought these animals into this country, even though they were taken legally, they brought them in, not knowing they were on the endangered species list.

There is bargaining by the Department of the Interior to the hunter. The representative of Department of the Interior says, “If you will

voluntarily give up that animal, we will fine you \$10, or we will not fine you at all if you give up the animal." This hunter did not know he took that animal illegally. As far as the country of origin is concerned, it was not illegally taken.

I attended the International Convention on Endangered Species last year with Mrs. Stevens and others. I was instrumental in getting a determination from that convention that sportsmen trophies are not considered part of trade throughout the rest of the world. If a legal hunting license and legal export permit is given by a country, the other countries party to the convention will allow that animal to be brought in—imported into the country. This is true in Great Britain, in Canada, Australia—any country that is a signator to that convention—except the United States.

We are working with Secretary Herbst. He has promised us we will have an interpretation of that law that will allow on a case-by-case basis these animals to be brought in as long as they are not on the U.S. endangered species list.

Here we have a second door to come through. We have animals that are legal to be taken in certain countries, and they are legal trophies under the terms of the convention, such as the leopard, legal in any country except the United States.

Now the U.S. Endangered Species Act says the leopard is endangered. Even if that leopard could be brought into this country under the terms of the convention, we have the second door stopping it under the terms of the Endangered Species Act of 1973.

It became the duty of the hunters of the United States to help determine the status of the leopard, for example. The two men who are primarily responsible for the leopard being on the endangered species list, Dr. Norman Meyers and Dr. Randall Eaton, both did later studies on the leopard. Both determined that the leopard is not in danger and probably should never have been put on the list. So the Department of the Interior conducted a third survey, by Dr. Wendall Swank, which is presently being reviewed by them. Our information from Dr. Swank is that his conclusion will be much the same as the other two doctors who made the study, that the leopard is not endangered in much of his territory.

It has taken a good number of years, and there are a lot of leopards that have been taken legally. Some leopard trophies are waiting in foreign countries to be brought into this country if the law is ever changed.

The thing we are asking for here is a liberal or maybe not even a liberal, but a better interpretation and a conclusion reached by the Department of the Interior that is congruous with the interpretation of the rest of the world about what constitutes trade in endangered species and what constitutes a trophy as personal property.

One answer that concerns us that we get from a lot of people in the Department of the Interior is that some foreign countries do not have a viable form of game management and, therefore, they—Department of the Interior—do not accept their decision that an animal should be cropped.

I would like to throw into this discussion, the Canadian Fish and Game Department who is very closely associated with the U.S. Department of the Interior. The Canadian Fish and Game issue permits for

the eastern woods bison which is much the same as our American bison, which is not endangered. The eastern woods bison is on the American list as being endangered. Yet, the Canadian Government issues permits for certain number of those eastern woods bisons to be taken each year in Canada, the northwest territory, part of their cropping program.

That animal cannot be brought into this country. We have a case now where one of our members in Michigan had had his animal seized. He went up there quite legally, with a permit from the Canadian Fish and Game Department, took that animal—an eastern woods bison—and tried to bring it home as a trophy. That animal was seized and is under bond with the Department of the Interior. It is much the same as the furriers case in earlier testimony. I was issued a permit to take a bison in Custer's State Park. That is part of their cropping program.

We are just faced with these decisions that it doesn't matter what someone says, whether an animal can be taken or not, he can't be brought into the United States if he's on the endangered species list.

Senator WALLOP. What happened with regard to the one in Custer's State Park?

Mr. OLDFIELD. Just an example that it is a form of cropping. Custer's State Park can maintain a herd of 1,000 buffalo every year. With their calf crop, they run between 1,300 and 1,400 buffalo every year. So they have to crop off between 200 and 300 and 400 to maintain a herd of 1,000.

The Canadian Government and the African Government have to do the same thing with their animal populations. Even though that animal is a viable crop in that country, the United States in some countries considers that animal endangered and really, as you will see in the rest of my testimony and some of the examples, there has not ever been any true study made on those animals before they were put on the endangered species list.

It was put on the endangered species list through a recommendation by one preservation organization or another that that animal be put on the endangered list. It became a part of the Federal Register and automatically goes into the endangered species list.

I think that we do have to come up with some guidelines as were specified by Congressman Dingell. The hunting organizations, and I believe almost every conservation organization in the United States supported this act. But it has been misused in a great number of cases.

Senator WALLOP. I assume, though, that in any instance where there was a doubt as to the viability of a species, that you would want it resolved in favor of the species.

Mr. OLDFIELD. Absolutely, sir. We spent \$12,000 to determine the true status of the leopard. As I said earlier in my testimony, there was no desire of any hunter to ever eliminate any animal from the face of the Earth. I further stated that there has never in the history of the United States ever been an animal put on the endangered list or threatened by sport hunting.

Senator WALLOP. Thank you very much, gentlemen, for your appearance.

[Whereupon, at 2 p.m., the subcommittee was recessed, to reconvene subject to the call of the Chair.]

[Prepared statements from today's proceeding and statements submitted for the record follow:]

STATEMENT OF WILLIAM J. CHANDLER, LEGISLATIVE LIAISON, THE NATURE CONSERVANCY, BEFORE THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE, SUBCOMMITTEE ON RESOURCE PROTECTION, JULY 29, 1973 DURING HEARINGS ON THE ENDANGERED SPECIES ACT.

The Nature Conservancy supports the goals and programs of the Endangered Species Act. Although it has taken considerable time to get the Act functioning properly and there are still administrative problems to be solved, the Conservancy believes the Act is conceptually sound and should not be amended at this time.

I would like to address two points related to the Act's purpose and implementation. One is the need to continue and improve our efforts to protect America's natural ecological diversity which is being increasingly diminished by the homogenizing forces of man's landscape altering activities. Natural lands are being converted to more intensive uses at the rate of 1.25 million acres per year. (Source: CEQ Annual Report, 1975). It is the Conservancy's opinion that the maintenance of this natural diversity should be the primary goal of a prudent biological resources management strategy.

The second point I wish to make is that the job of protecting most species and other elements of diversity can be accomplished without jeopardizing this country's overall economic development.

The Value of Natural Diversity

The question is often raised about the value of species. Does it really matter if the last relic prairies and virgin forest lands of the United States are destroyed, or if the number of United States species of higher plants are halved from 30,000 to 15,000? What difference does it make if the desert fishes of the Southwest are exterminated or if the peregrine falcon disappears forever? The answers to these questions may be succinctly stated.

(1) Foremost among these is the fact that the preservation of genetic resources represented by the millions of plant and animal species on earth provides our nation with a reservoir of diverse resource options for the future. Every species is a unique biochemical factory which probably contains substances and capabilities found in no other. To a great extent our civilization is underpinned by past scientific discoveries that enable us to use individual plant and animal species for food, structural materials, fiber, and chemicals for industry and medicine. From wild grasses, for example, have come wheat, oats, barley, and corn.

The discovery of species' utility is a never-ending one. During the 1950's it was discovered that the jojoba bean from the Southwest desert shrub contained an oil similar to that of the sperm whale. Subsequently this plant oil has proven to be a viable substitute for machinery lubrication. The substance mercenene, produced by some species of shellfish, has been found to prevent or arrest cancer in test animals and is being further researched. We do not know what benefits seemingly useless plant and animal species may one day produce. We will never know if we destroy them. Preserving the widest possible spectrum of plant and animal life is therefore a matter of prudent resource management.

(2) Equally important, each species plays a unique ecological role in the exceedingly complex hierarchy of interlocking ecological systems. We have only begun to understand the workings of these systems and their component parts. Hence prudence dictates that we heed the advice of Aldo Leopold who cautioned that the first prerequisite of intelligent tinkering is to save every cog and wheel. The United States is not so poor a nation that we cannot follow his advice.

(3) Natural areas containing diverse plants and animals provide cultural, scientific, and recreational benefits to our people. These areas provide a tie with our natural heritage. They may be used as environmental baseline sites for measuring the impacts of pollution and other environmental manipulations. They are valuable for scientific research and education; and they provide us with opportunities for a wide variety of recreational pursuits from hunting to solitary contemplation. The continued destruction of such sites by random landscape alteration denies those who follow us the benefits of natural areas and diminishes the overall quality of life for our nation.

The Feasibility of Species Preservation

The Endangered Species Act directly addresses the loss of America's genetic resources. It focuses on individual species which are in danger of extinction and sets up a variety of mechanisms which if effectively implemented could reverse the trend of species destruction. The Nature Conservancy fully supports this approach as an effective way of preserving individually threatened elements of our diversity.

Questions have been raised about the feasibility of achieving the goals of the Endangered Species Act. Is it really possible to preserve all of the species which comprise America's ecological diversity or have we in fact bit off more than we can chew? Contrary to the implications and assertions of some witnesses which appeared before this Committee, The Nature Conservancy believes that the job is accomplishable and that it can be done without creating social or economic hardships on the nation as a whole.

This is not to say that there are not problems in trying to carry out the goals of the Act. Several witnesses have raised the issue of the impossibility of preserving thousands or even millions of species which exist in the world. It is true that the existence of many of the invertebrate animal species is not even known. It would take hundreds of years and more biologists than there are in the United States to discover and study all of the insect species, for example, and to provide us with enough information on their characteristics and natural history to allow a rational determination as to whether or not they would be listed as endangered or threatened.

Nevertheless maintaining this diversity of species is important to mankind; yes, even those thousands of insects about which we know little or nothing at this time. If we agree on this point, the issue then becomes how to preserve the maximum amount of diversity in the most efficient way possible.

Since its creation in 1951, The Nature Conservancy's principal purpose has been to identify and preserve ecological diversity in the United States. In 1976, the Conservancy helped preserve the habitats of 70 nationally and locally endangered species. Over the years, we have realized that the most effective strategy for diversity preservation is to preserve sufficient examples of all elements of natural diversity. To locate these examples, and to determine their status and viability for protection, we have made two simplifying assumptions:

(1) If we classify the landscape into plant and aquatic community types, the preservation of one or more examples of each of these types will capture most of the thousands of species of which we know little or nothing, and most of the common animal species which are associated with these communities.

(2) All of the more visible rare, endangered or threatened species of mammals, amphibians, reptiles, birds, fish, and higher plants can be preserved by locating the places on the landscape where these animals are found and protecting enough of these habitats to perpetuate the species. This is the objective of the Endangered Species Act.

The Information Gap

A big gap at present, as many witnesses have already indicated, is the lack of sufficient information - properly organized, maintained, and utilized - to ascertain the relative status of the various species and plant communities, and the relative significance of various lands to their perpetuation. In recent years we have been attacking this problem in conjunction with individual state governments - assisting them in creating an on-going process to gather, organize, and store in an easily accessible information system, data on the existence, location, characteristics, numbers, condition, protection status, and distribution of examples of the state's elements of diversity. After initial development, installation, and testing, the machinery of the program is transferred to full state operation. This data model is now operational in nine states - Tennessee, West Virginia, Mississippi, North Carolina, South Carolina, Ohio, Oregon, Oklahoma, New Mexico - and the 201 county power distribution area of the Tennessee Valley Authority. Many other states have expressed strong interest in beginning their own data systems.

State Natural Heritage Programs

A state natural heritage program operates in the following manner:

(1) The state's elements of diversity are classified into plant community types, aquatic community types, animal species, plant species and other notable ecological features or phenomena.

(2) A continuous inventory process searches known information sources to gather data on the location of each of the elements in the classification system. As the process proceeds, field surveys are carried out to search for new locations of elements, to verify old records, and to gather additional data on the qualities of the localities discovered.

(3) The information gathered in the inventory process is organized in a cross-referenced system of map, manual, and computer files for efficient accessibility by data bank users.

(4) As the data bank matures and priority land areas are identified, the states and the Conservancy develop balanced protection strategies for these sites and resources.

Uses of Data

Existing state data banks contain information on a much larger number of species than the 298 species listed or proposed for listing under the Endangered Species Act. The Tennessee program is gathering information on 563 species and 133 other elements of diversity; Ohio, 746 and 136; North Carolina, 602 and 508; Oregon, 823 and 575. This shows that states are interested and capable of running effective, comprehensive, biological data management programs and that they voluntarily show an interest in identifying and protecting a much greater array of elements of diversity than just federally listed species.

State data is being increasingly utilized by a wide variety of government agencies and private individuals to supply information

and documentation in a timely manner to help comply with state and Federal environmental laws, to improve conservation management, and to improve the EIS process of the National Environmental Policy Act:

(1) The State of Tennessee is using its data bank to screen all rural development projects in compliance with OMB's A-95 circular on environmental assessments for Federally funded projects.

(2) Mississippi passed a strip mining law this year which requires the identification of important natural systems and ecologically sensitive areas as unsuitable for mining operations, and has directed the state natural diversity program to help identify these sites.

(3) The Fish and Wildlife Service has consulted several state data banks for the location of historic and active peregrine falcon nesting sites in conjunction with their restocking efforts.

(4) New Mexico's State Park Commission has inventoried its entire park system for occurrences of plants and animals so as to improve its management system.

(5) In North Carolina, the Highway Department modified a highway corridor after learning that it would adversely impact the habitat of eight threatened and endangered species.

(6) In West Virginia, the Environmental Protection Agency is using inventory data to evaluate the environmental impact of mining permits.

(7) A private electric power company in South Carolina is designing its power line corridors using inventory data. One important biological site has already been avoided.

These are only a few examples of the uses to which this information tool is being put. The net effect of all data uses is the efficient maintenance of natural diversity without unnecessary

conflicts, provided that the information bank is consulted and heeded early in the development planning process. Heretofore, the impact of development projects on a state's natural diversity has been ignored largely due to the undervaluing of biological resources, and the lack of good information. Randomly occurring development will continue to place even more species on the endangered list as long as we fail to collect, organize, and utilize biological data in timely fashion.

Conclusion

The Conservancy strongly endorses the Endangered Species Act and recommends that it not be amended. We will continue working through our state natural heritage programs and land acquisition activities - to preserve the full array of America's natural diversity in support of the Endangered Species Act. Furthermore we encourage the Congress and the Carter Administration to do everything possible to further the preservation of America's diversity of species, plant communities, and ecosystems.

FRIENDS OF THE EARTH

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DAVID BROWER, President

TESTIMONY OF ANNE WICKHAM,
CONSERVATION DIRECTOR, FRIENDS OF THE EARTH
BEFORE THE SENATE ENVIRONMENT AND PUBLIC
WORKS COMMITTEE, SUBCOMMITTEE ON RESOURCE PROTECTION

July 28, 1977

I am Anne Wickham, Conservation Director of Friends of the Earth, an international environmental lobbying organization of 29,000 members in the U.S. and additional members in sister organizations in twelve foreign nations. Our Washington, D.C. office is located at 620 C St. SE. Today I am also representing the Sierra Club, an international environmental lobbying organization of 175,000 members in the U.S., with Washington offices at 330 Pennsylvania Ave. SE; and the American Rivers Conservation Council (ARCC), a nationally active organization dedicated to the preservation of America's heritage of freeflowing rivers. ARCC has approximately 1500 members and Washington offices at 317 Pennsylvania Ave. SE.

Accompanying me is Zygmunt Plater, who has undertaken major academic research on the Endangered Species Act and its legislative history. Zyg, in association with the Department of Interior and research assistant Deborah Labelle from Wayne State Law School, ^{has} just completed extensive study of the administrative files pertaining to the Endangered Species Act of 1973. Additionally, he is the attorney who is presently litigating the Tellico/snail darter case and foremost expert on the Act.

We --and all the major national conservation groups with whom we have worked on this issue over the past five years--stand in strong support of the principles and procedures of the Endangered Species Act of 1973. Rarely does one issue attract such unanimity of support in a conservation community made up of diverse and sometimes conflicting elements. This issue exhibits that unanimity and that agreement emphasizes both the importance of the concept of protecting our endangered heritage of ecological diversity and the wisdom of Congress in passing the comprehensive 1973 statute by wide margins.

Our statement today makes comments in two areas, the Act in general and the current review of the Tellico case in particular:
The Act in general: The Endangered Species Act has as its main virtue the fact that it is a comprehensive attempt to answer the threat of loss of our natural heritage of diversity. Its listing provisions are careful procedures for establishing the best practical information, subject to continual state-of-the-art updating, so that conservation efforts will have a sufficient data base. Its enforcement procedures, in restricting private killing of endangered species, marketing of endangered species, and federal actions potentially threatening species and their habitats. These principles and procedures all appear to be as workable as they are desirable, and with the growth of knowledge about the Act and its procedures, citizen and agency implementation of the fact can be expected to improve further.

We wish to address some of the major questions raised by the initial outcry when the Act was applied in court to obtain review of federal

Committed to the preservation, restoration, and rational use of the ecosphere

projects threatening several species and habitat. The major argument was that the Act required amendment to add "reasonable flexibility." Proponents of endangered species protection have understandably been concerned about the flexibility problem, since if the Act is too rigid in its operation, its lack of balance will discredit both its supporters and the legislative policy itself, threatening the legislation's survival.

The "inflexibility" argument does not stand up to scrutiny, however; when reduced to its basis it asserts that the Act should be amended because it is doing what it was intended to do.

A review of present and prospective implementation of the Endangered Species Act indicates that the inflexibility argument is not supported by the facts, nor is it procedurally evident. If ever amendments to the Act are to be considered by supporters of endangered species conservation, it should be on future evidence of statutory intractability, that does not presently appear to exist. In assessing the Act, it is useful to remember similar arguments made against the statutory language of NEPA and the Parklands sections of the highway acts in the early 1970's. As in those cases, by waiting to see if any of the dire consequences predicted actually occur, Congress can avoid precipitous action not required by the circumstances. By focusing on the existing flexibility and balancing procedures in the Act, conservation interests can make a strong practical case for protecting the Act against piecemeal erosion by incremental amendments to its text.

Present Flexibility limited only in scope of court review:

TVA and other opponents of the Act argue that the judicial interpretation given the Act in the Tellico and the sandhill crane cases demonstrates its inflexibility.

The judicial opinions demonstrate, however, that the court system is the only governmental arena which does not have discretionary flexibility under the Act. The courts should not be pulled into the highly politicized role of balancing all the complexities of biological science and Congressional policy. That responsibility, the courts indicated, does properly exist in the agencies which implement the Congressional mandate and, as a last resort, in Congress.

Administrative flexibility:

Beyond the courtroom, however, there has been a consistent and impressive course of administrative flexibility in the practical operation of the Endangered Species Act. Though not generally recognized, the past four years have seen more than 4500 agency consultations with the Fish and Wildlife Service concerning potential project conflicts with the Act. According to the Service's recently prepared report, most of these cases were handled informally, with formal documentation commenced in over 200 cases.

In the vast majority of cases, simple administrative resolutions of the issue were possible. Administrative resolutions between the Fish and Wildlife Service and construction agencies involve, in sequence:

1. Ascertaining the endangered status of a species and its critical habitat (listing procedures involved extensive consultation between federal and state agencies, biologists, and interested parties with full rulemaking procedural requirements).
2. Determining whether the agency project would have a negative effect

upon the species.

3. Determining whether any negative effect is substantial.
4. Interagency discussion about project design improvement to avoid and mitigate substantial negative effects or to improve conservation possibilities for the species involved.
5. Interagency discussion on continuing research requirements factfinding to avoid conflict with species or habitat.
6. Development of conservation programs.

In fact, given good faith agency consultations, there does not appear to have been any case so far in which the public development project objectives could not be reconciled with conservation of the species.

Cases Where Administrative Process Failed:

Of the more than 4500 cases in which potential conflict existed between projects and endangered species, only three have reached the courts:

- A. Mississippi sandhill crane, where the Federal Highway Administration insisted on an interchange on Interstate 10 that would excavate portions of the crane's habitat and result in disruptive interchange development. The court sent the case back to the agencies for good faith bargaining. Result: design modification for interchange.
- B. Indiana Bat/Meramec Dam controversy, where the court determined that insufficient studies existed to prove harm to the species, and refused to enjoin the project. Result: studies continue pending Congressional review of funding for project.
- C. Snail darter/Tellico Dam, where TVA has resisted conservation efforts for the natural population of snail darters in the dam area. The court enjoined the project, indicating that even after protracted delay, the agency project and its alternatives must be reviewed.

Irreconcilable Conflicts:

Ultimately, of course, cases may arise where the national interest requires that a project be completed and a species be lost. Such cases will be increasingly rare, as shown by past administrative experience, by pre-planning on future projects, by the diminishing number of water resources projects, etc. Even the addition of endangered plants to the list should not significantly change this, as most of the plants in low altitude areas have already been destroyed. The majority of surviving species in both Hawaii and California (where most of the listings are from) are found at altitudes of 3000 feet or higher, not the coastal lowland.

If, however, such irreconcilable conflicts exist it is altogether consistent with the Act that specific project exemptions be considered and passed, with as much mitigation as possible. Congress is not likely, as a forum of last resort, to see a flood of cases. If the Tellico Dam case is given vigorous review, then running to Congress with every little problem will be discouraged. The occasional case in Congress can be handled appropriately. If the public interest is clear, the burden will be minimal.

Proposed Amendments:

None of the Amendments discussed in the press, in several bills introduced in the House or in the comments of opponents of the Act offers the possibility of

effective protection of endangered species while weighing the public interest in other areas. The danger that amendatory "escape clauses" are likely to become political footballs in which the principles of species protection, whatever the procedures, are always the lowest decisional priority. Such amendments inevitably would remove the present agency motivation to negotiate in good faith to resolve potential conflicts. They would encourage erosion of the conservation principles themselves and might paradoxically result in more cases becoming politicized and brought to Congress. The existing system, where agencies are strongly motivated to reconcile competing interests in administrative processes, subject to legal sanctions, appears to be the workable solution.

Tellico as Precedent:

Along the same lines, it is important to note that the vigor with which Congress reviews the Tellico Dam issue will help establish a workable system of implementing the Act. If agencies are shown that the ultimate potential for last-resort review of an exemption by Congress is a serious, factual inquiry, agencies will be motivated to settle their conflicts in the administrative process. If a Tellico exemption were to become a political football, it would encourage the flood of cases which no one wants to see come to Congress.

Much has been said about Tellico to date. Suffice it to say that the hearings so far appear to establish: 1) that TVA has consistently declined to consider any project alternatives to achieve project benefits without a reservoir, even though this would fully protect the species and its habitat; 2) that even today such beneficial alternatives appear to exist; 3) That TVA will not develop viable alternatives unless Congress asks them to do so, and 4) that the valley is a unique resource that, like the snail darter, merits our best efforts in public decision-making, because once flooded it will be lost forever. Since there is literally no rush for more industrial lots, flatwater recreation or minimal water project benefits in Tennessee, we urge that the decisional process on Tellico be undertaken carefully and in the public's interest. The effectiveness of the Endangered Species Act nationally is at stake as well as this special public resource in East Tennessee.

Transplantation Argument:

Tellico also raises a further issue of national relevance. From the beginning, TVA took the position that transplanting the species elsewhere was a full and logical response to the Act. This argument misses serious issues of fact, of law and of policy in regard to the Endangered Species Act in general and the Tellico Dam case in particular. Resolutions of conflicts between projects and the Act are best achieved--as they have been in the large number of endangered species cases arising in the agencies to date --through research, design review, modifications in process, location and timing which reconcile the competing interests.

Transplantation in General (Biological Problems):

The transplantation argument initially raises serious biological problems. Transplantation is often a difficult process, and its successful accomplishment is impossible to guarantee and hard to predict despite an agency's best good faith efforts. Ecological habitats are composed of a variety of biological support elements whose existence, function, and interaction may be indispensable but unknown or little understood. Negative elements or strains on a species in a transplant habitat may be destructive but likewise unpredictable.

In most cases the biological problem may be demonstrated by the fact that the species does not presently exist in the area proposed as the transplantation site. If the species does not exist there, despite proximity to original site, the it is likely that the second habitat does not possess all the elements of the first necessary to survival of the species. In any event, the success of a transplant might not be determined for years. In some cases, the removal of a portion of the species population to a second site for transplantation might endanger the original population, risking extinction.

Legal Flaws:

The transplantation argument misses the major point of the Endangered Species Act and Section 7. Section 7 is designed to protect endangered species in their natural habitat, and to that end the statute prohibits destruction of their critical natural habitat. The courts have made this extremely clear. The only possible legal relevance that transplantation has to the situation at hand is that over time sufficient transplantations might allow the Secretary to de-list recovered species. By its very nature this possibility requires protracted time periods and biological certainty.

Conservation of Human Values:

Jimmy Carter said last year, in reference to the Endangered Species Act: "Abundant and diverse fish, wildlife, and plant species are essential to our enjoyment of the natural world, as well as our own survival... Our fish, wildlife and plant resources act as an indicator of the health of our environment....When they have trouble surviving, we should seriously examine the quality of our environment." By their very presence most endangered species indicate a threat that its habitat's quality is disappearing...for humans and non-human species alike. That habitat in question is as the canary in the coal mine; we must guard its life with our own because it in fact may one day be our own that is threatened.

Tellico Transplantation:

On the basis of the reasons noted so far, the conflict between the snail darter and the TVA's Tellico Dam offers a strong precedent for the Act and against the transplantation strategy .

In the Tellico case the agency has consistently refused to consider conserving the snail darter in its original habitat, because to do so it would have to consider suggested non-dam alternatives to the economic development project. Current GAO and development planning reviews indicate that project modifications are feasible and consistent with the preservation of the snail darter population in its natural habitat.

In terms of transplantation in the Tellico case, TVA has initiated a transfer of 700+ snail darters into the Hiwassee River about forty miles from the critical habitat on the Little Tennessee River. Though some evidence exists of survival and limited reproduction in the Hiwassee, the transplant site lacks the habitat conditions available in the Little T: the Little T offers extensive riffle areas of large gravel substrates which are necessary for the fish's reproduction and support; the new sites have less than 5% of the habitat available in the Little T's range,

so that even if the transplant is successful closure of the dam would represent a 95% loss of an already-endangered species. The major effect on the species would, however, be the effects of toxic substances on the fish. The Hiwassee is joined by the Ocoee River, Tennessee's most polluted stream (sulfur, cyanide; heavy metals). It is difficult to imagine the survival rate being very high, as larval drift takes the fish into this stretch of river which is highly toxic. The Holston River, another proposed transplant site, suffers periodic discharges from an Eastman Kodak plant and has a mercury problem.

According to scientists from the Fish and Wildlife Service, TVA and the University of Tennessee, successful transplants take 5 to 10 years to be established, since many streams have ecological cycles which may occur over a span of years. The Hiwassee, for instance, has a cyclical acidic water phase. No reliance can be made on the same time into the future. Further questions are raised as to the suitability of Hiwassee habitat when it is noted that darters have had access to it over the years, and yet do not exist there naturally.

Legally, moreover, the attempted snail darter transplant is insufficient. As the Sixth Circuit noted:

"We recognize that TVA has completed an experimental transplant of some 700 snail darter specimens from the Little Tennessee to the Hiwassee River. . . While we share the hope that conclusive evidence, not yet available, will confirm that the displaced population is thriving and reproducing, even if that evidence were properly before us, it would not alter our decision to enjoin further Tellico Dam construction. . . Nowhere in the Act are the courts authorized to override the Secretary by arbitrarily "reading" species out of the endangered list or by redefining the boundaries of existing critical habitats on a case-by-case basis.

The law therefore protects the snail darter in its natural habitat until either the species is removed from the protected list or until the Congress makes a general/specific exemption for the Tellico project.

Summary:

In sum, the Endangered Species Act has understandably raised a variety of issues never before debated, and it is commendable that the Senate has made time to review the performance of the Act in practice. From this review we are pleased to note that the Act is working, that it is making national accommodations between our endangered natural heritage, and other human benefit principles, and we look forward to a continued constructive history for this important national conservation statute.

In closing I would like to submit several documents for the record, and I would like to single out for thanks Robert Herbst and Keith Schreiner of the Department of the Interior. They are totally responsible for our being allowed to wade into Interior's files on the Endangered Species Act to find the facts we so desperately needed in answer to the question before us here today, "Is the Act flexible?"

STATEMENT OF NATIONAL TROUT UNLIMITED, INC.
 AND THE AMERICAN RIVERS CONSERVATION COUNCIL
 BEFORE THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
 FOR 1977 OVERSIGHT HEARINGS ON THE ENDANGERED SPECIES ACT

JULY 28, 1977

Mr. Chairman and distinguished members of the Committee, National Trout Unlimited, Inc. and the American Rivers Conservation Council are pleased to submit our views on the Endangered Species Act which is under consideration by the Committee today. Trout Unlimited is a national conservation organization dedicated to the preservation of the nation's diminishing coldwater fisheries. The American Rivers Conservation Council is a national organization dedicated to the preservation of free-flowing rivers.

National Trout Unlimited (TU) and the American Rivers Conservation Council are joined in our support of the Endangered Species Act and we wish to affirm to the Committee our belief in the Act's present workability to protect the precious diversity of our natural heritage without undermining the effectiveness of other important national programs. Both our organizations have been supporters of the Endangered Species Act since before its passage in 1973.

We especially wish to address our direct concern and involvement in the deliberations over the Tellico dam in Tennessee because we feel that, in this case especially, the exception does prove the rule: that ample flexibility exists in the Act whenever there is good-faith compliance with this farsighted Congressional directive.

THE TELlico DAM

We have been involved in opposing the Tellico dam project as planned for a number of reasons, especially important of which are:

(a) Tellico is an economically marginal project which includes a dam and reservoir in Tennessee which will destroy the last major stretch of high-quality free-flowing big water river left in eastern Tennessee, a river which supports a widely-used teeming trout fishery.

(b) The project represents a threat to the continued existence of the snail darter and its critical habitat area, a habitat shared by important game fish such as brown trout, rainbow trout, large and small mouthed bass, blue gill, etc. The snail darter once existed throughout the eastern Tennessee River Valley, but its habitat has been narrowed to only a 17-mile stretch of the Little Tennessee River due to the unprecedented large-scale damming of nearly all rivers and large streams in the region by the TVA, the Army Corps of Engineers, and others over the past forty years.

(c) The project also represents a potential threat to the perceived workability of the Endangered Species Act because of the Tennessee Valley Authority's inflexible approach and lack of good-faith effort to comply with its mandate.

NEPA CASE

Long before the discovery of the snail darter, National Trout Unlimited was instrumental in identifying the Tellico Project's inadequacies under the National Environmental Policy Act (NEPA). This led to litigation, in which Trout Unlimited participated, that resulted in an injunction for some 18 months from 1971-1973. Unsuccessfully, the Tennessee Valley Authority had argued that NEPA did not apply to the Tellico Project. The Sixth Circuit Court of Appeals upheld the District Court-imposed injunction.

In 1973, after the release of the Environmental Impact Statement, TU and others argued that TVA had given insufficient attention to a study of alternatives which could accomplish the stated goals of "regional development," but at less environmental cost. The courts, however, withdrew the injunction and construction was allowed to proceed.

Trout Unlimited and ARCC in general are concerned that agencies coordinate their activities in an environmentally sound manner based on administrative procedures which reflect these concerns. The TVA's posture that NEPA did not apply to the Tellico project reveals the agencies' initial unwillingness to embrace environmental soundness and public involvement in project planning as an important administrative goal. TVA's reluctance to enter into meaningful consultation with the Department of Interior regarding the snail darter affirms the intractability which has led to the case at hand. In both cases, TVA argued that, because Tellico had been authorized prior to passage of the Endangered Species Act, these laws were not applicable to the project. Meanwhile, construction and land acquisition activities were greatly accelerated, attempting to make these issues moot by completing the project as quickly as possible.

This begs the question: Why does an agency such as the Tennessee Valley Authority, which has been entrusted with the responsibility of serving the interests of the American people as defined by the United States Congress, adopt such an immovable advocacy position of a single project design which runs so contrary to obvious congressional concerns?

We emphasize that the Endangered Species Act relies on good-faith consultation between the federal agencies whenever a potential conflict arises. Experience has proven in the vast majority of cases since the Act's passage that an acceptable resolution was readily available either by determination that there would be no impact on the species or that, through adjustment of project design, accommodation can be reached.

In the Tellico case, however, we note that from the beginning of citizen criticism of the benefit-cost consideration of the project, the TVA has refused to consider any other course of action. Under these circumstances, it is virtually impossible to have good-faith consultation and mitigation of perceived environmental damages.

It is regrettable when citizen groups have to go to court because it indicates when the system is not working. This case is doubly tragic because, even with a series of citizen-group court successes, the TVA has refused to consider the alternatives which are in the public interest.

Specifically in regards to Tellico, it appears that any other alternative would be far less destructive to the river. We suggest, as have others, that the Congress send this case back to TVA with the request that the agency develop a comprehensive study of alternative plans for the Little Tennessee Valley with recommendations. With this reasonable approach, both the administrative strengthening of the Endangered Species Act and the chance to best serve the public interest will be realized.

THE LITTLE TENNESSEE RIVER

The Little Tennessee River is a truly exceptional river resource in the southeastern United States. Because of its large size and tremendous volume of water, there are more acres of trout water in the Little Tennessee River than there are in all the other river systems combined in the entire Cherokee National Forest stretching from Virginia to Georgia along the Tennessee state line. It has the greatest carrying capacity for cold water fishes, especially trout, of any equivalent mileage in the region, and has attracted fishermen from all over the eastern U.S.

The Little Tennessee River has the size and fertility of the great western rivers such as the Yellowstone, Madison, and Gallatin Rivers. Fingerling trout introduced into the river can grow as quickly and in as great numbers as in any hatchery due to the unique fertility of its waters.

The river also offers both float fishing and wade fishing in its sandy shoal areas. These are unique qualities especially valued by fishermen. The nearest eastern rivers analogous to the qualities of the Little T are the White and Norfolk Rivers of the Arkansas Ozarks, which are not as fertile.

Finally, the Little Tennessee's qualities are especially unique because of the loss, one by one, of all the other stretches of river in the region of anything close to equivalent stature. There are more than 60 dams in the Tennessee Valley now, and the unjustified Tellico Lake would eliminate the last fine river.

CONCLUSION

For these reasons and others, National Trout Unlimited and the American Rivers Conservation Council hope that the Committee will affirm the workability of administrative solution to the conflict with the Endangered Species Act by requesting that the TVA study the alternatives and resolve these concerns in a manner which best serves the national public interest in light of the many issues which have been raised through the public hearing and court processes.

Endangered Species Act of 1973
Oversight Hearings

STATEMENT OF MICHAEL E. BERGER ON BEHALF OF THE NATIONAL WILDLIFE FEDERATION
 BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, SUBCOMMITTEE
 ON RESOURCE PROTECTION, REGARDING THE ADMINISTRATION OF THE ENDANGERED
 SPECIES ACT OF 1973

July 28, 1977

Mr. Chairman, I am Michael E. Berger, Assistant Conservation Director for the National Wildlife Federation which has its headquarters at 1412 Sixteenth Street, N.W., here in Washington, D.C. I am a professional conservationist with degrees in Wildlife Management and Resources Development.

Ours is a nonprofit, nongovernmental organization which has independent affiliates in all 50 states, Guam, Puerto Rico, and the Virgin Islands. These affiliates, in turn, are made up of local groups and individuals who, when combined with associate members and other supporters of the Federation, number an estimated 3-1/2 million persons.

We welcome and appreciate the opportunity to speak to you concerning our involvement with the Endangered Species Act of 1973 and its administration.

The NWF is dedicated to conservation education and emphasizes the concept that wildlife is a renewable resource only as long as suitable habitat is available. We believe that the Endangered Species Act of 1973

embodies this important concept in one of the most far-sighted, and comprehensive pieces of legislation ever enacted for the protection of wildlife. The Federation has urged a strong National Commitment to the passage of endangered species legislation and most recently to providing meaningful and significant financial support necessary for its implementation. One of the resolutions adopted by the affiliate representatives of the National Wildlife Federation in their 41st Annual Meeting held this year in Washington, D.C. reaffirms our concern for the alarming increase in the rate of species extinctions:

"The National Wildlife Federation continues to believe that man has a basic responsibility to take every reasonable means, including financial expense, to ensure that his actions do not result in the extinction of any animal or plant. Further, it is believed essential that units of federal, state, and local governments must work together closely to preserve areas of critical habitat, prepare and manage recovery plans, and enforce regulations protecting rare, threatened, or endangered species, enlisting the aid of interested citizen groups and individuals to the degree possible."

The Federation has long been active in programs to protect and preserve species such as the prairie chickens, bald eagles and sandhill cranes but without the strong unified approach that this Act represents, we were losing ground, the Act offers the adequate regulatory and statutory authority and the potential for funding needed to affect a reduction in the current high rate of extinctions. In this Act, Congress recognized our responsibility to conserve these natural resources—both in recognition of their place in our nation's heritage and in our international commitment.

The Endangered Species Act of 1973, as had its legislative predecessors, focuses on the importance of habitat protection as a direct method to help prevent future extinctions. It recognized that commercial exploitation, pollution and a number of other factors can contribute to the demise of a species, but the loss of the habitat necessary for the existence of endangered wildlife and plants is by far their greatest single threat. Environmental destruction and the loss of living space due to man's activities has increased profoundly in the last few decades. The acquisition of lands for endangered or threatened species is an important element of both State and Federal efforts outlined in this Act. The Act further stresses the importance of the habitat and species protection concept, in Section 7, by encouraging conservation and habitat protection for listed species on Federal lands and in activities that are federally funded. The Act recognizes the importance of garnering all the available resources to both protect and increase the populations of species that are now endangered and to make sure that no actions are taken that will contribute to the further endangerment of these vulnerable species. The Secretary of Interior, who acts through the Fish and Wildlife Service, appropriately occupies a pivotal role in the implementation of the Act by issuance of biological standards for protecting species. But overall the success or failure of this critical endeavor depends on the achievement of voluntary compliance by other federal agencies and the participation of state agencies. This is pointed out in the conference report for the Act under Section 6:

"It should be noted that the successful development of an endangered species program will ultimately depend upon a good working relationship between federal agencies, which have broad perspective and authority, and the state agencies, which have

the physical facilities and the personnel to see that state and federal endangered species policies are properly executed."

The NWF recognizes that with human population increases, disturbances to species will continue and habitat will be lost. Without Section 7 of the Endangered Species Act, we will lose any hope of achieving a uniform federal conservation posture which will result in the conservation and preservation of endangered species. Section 7 was not conditioned to be interpreted only when economically advantageous to an agency or when consistent with their special interest. The Act was intended to be applied in all cases. It is an attempt to balance the concern for endangered species with the concern for economics and other special interests. Prior to this Act's inception, few arguments for these vulnerable species stood up under the great pressure to manipulate and disrupt natural environments for economic and population growth. Granted there were examples of species that in special cases received public support against unrestrained development, but overall no one felt a responsibility for representing the interests of these species. The appropriate truism is that there is rarely any responsibility shown in decision-making when those who make those decisions do not have to suffer the consequences. All species are susceptible to man-made disturbances and now have a recognized value by virtue of this Act. An example of the setting of values of endangered species in the marketplace was illustrated when the state of Texas was asked how much a whooping crane was worth--the answer "not very much." They considered the value of oyster shells dredged for road building more important, even though that dredging resulted in loss of critical habitat and silting of the whooping cranes' food supplies. The value of a healthy, balanced ecosystem should be obvious, but is usually overlooked until it is too late.

The Act does recognize that there are endangered species that are presently highly valued in the marketplace, but also includes all others by finding that these endangered and threatened species "of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people." The evolution of a single species is a process that may take millions of years and can never be duplicated. No logical line can be drawn as to which species should live or forever be wiped from the face of the earth.

The various sections of the Act are all complimentary and therefore necessary to provide an effective program for ensuring that wildlife will be protected for future generations. None can stand alone. Section 7 is indeed necessary as an integral element of this expansive effort but becomes even more important because its successful implementation serves as an enlightened, responsible example for others to follow.

Further it is our contention that the Act was not intended to stand alone but rather to be a part of an overall legislative package designed to achieve a uniform federal conservation posture, aimed at minimizing natural resource depletion while still providing for future progress. This package includes the National Environmental Policy Act of 1969 (NEPA) and its Environmental Impact Statement (E.I.S.) procedure. It calls for a continuing policy of the federal government "to use all practicable means and measures including financial and technical assistance, in a manner

calculated to foster and promote the general welfare to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economical and other requirements of present and future generations." Prior to taking any federal action with significant effects to the environment certain procedures should be followed and these involve the consideration of alternatives to the proposed action and consultation with other federal agencies which have jurisdiction because of law or special knowledge of any environmental impact involved. The Endangered Species Act of 1973 gives the Department of Interior both the resources necessary and the responsibility for response on behalf of endangered species in the NEPA process.

Sound, well-researched projects with opportunities for adversary input and honest, complete alternative presentations would negate the need for widespread civil suits or requested congressional review. To date there has not been a project that meets these review criteria and is conflicting with the critical habitat of an endangered species. If in the future such a situation develops and the agency responsible for the project decides that because of overriding public welfare that the project must be completed, then a substantive review through the judicial and possibly legislative process is necessary. The project should be able to stand up to a thorough evaluation, and then, and only then, should Congress have to balance the benefits to be derived for the public welfare.

If the letter and spirit of NEPA is followed then it permits a decision-maker to fully consider and balance environmental factors with a reasoned choice of alternatives. It offers an opportunity to both provide and receive public enlightenment.

If in the preparation of an agency's E.I.S. environmental matters are considered "to the fullest extent possible" and are coordinated with other agencies, private organizations and individuals and good faith is shown by all then we will see enlightened resource decisions made.

The NWF has been involved in two recent examples of federal actions threatening the continued existence of endangered species. One was in a complaint filed against the Department of Transportation by NWF and our Mississippi affiliate. We were obligated to come to the aid of the 40 remaining endangered Mississippi Sandhill Cranes whose existence was being jeopardized by a highway interchange planned for Interstate 10 near Gulfport, Mississippi. After the court ruled the Endangered Species Act had been violated, good faith discussions of alternatives acceptable to both the Fish and Wildlife Service and DOT began, and negotiations are continuing.

The Federation never took the position that the highway should be stopped but wanted to make certain that it was built in a conservation-conscious way compatible with the needs of the cranes. The Department of Transportation apparently agreed that land near the interchange could be acquired in public ownership to protect the critical crane area from development induced by the interchange, and that the "borrow pits" that they needed to supply road building material could be placed elsewhere. This could have been handled without reliance on the courts if good faith

negotiations under Section 7 of the Endangered Species Act and an honest assessment of both the need for all aspects of the project and an evaluation of alternatives had been conducted at a much earlier stage.

Fortunately, for the preservation of endangered species, most agencies have willingly complied with the requirements of Section 7 and consulted in good faith. Through good faith consultation the intent of the Act is satisfied and potential differences resolved through negotiation. Of an estimated 4,500 consultations between federal agencies and the Fish and Wildlife Service only 124 became "formal" procedural consultations and of these only three have not been resolved following this administrative process. All three involved citizen-invoked litigation. Only one of the three projects, Tellico, unresolved by the administrative and judicial processes, has reached Congress.

The NWF was recently involved in one of the many examples of the good faith negotiations leading to the resolution of a possible conflict. It involved the endangered Bachman's warbler, a small yellow bird, whose best known habitat is in the 4,500 acre I'On Swamp in the Francis Marion National Forest in South Carolina. Warbler habitat was considered to be threatened by the proposed clear-cutting of trees by the U.S. Forest Service. The NWF was prepared to represent a private group in litigation to prevent this activity when it was observed that both sides had valid arguments in the dispute. A NWF lawyer proposed a reasonable alternative—mediation. He suggested a three-person arbitration panel with wildlife experts from U.S. Forest Service, Fish and Wildlife Service, and the Wildlife Society. A moratorium calling for no lawsuits or cutting of timber was agreed upon

until a recommendation was received from the panel. A compromise was found that was acceptable to both government agencies and the conservationists. In the meantime, Clemson University scientists will further study the warbler. This is an example of common sense and environmental concern being used most productively.

Our Tennessee affiliate, the Tennessee Conservation League has shown a very reasoned response on TVA's Tellico project. They have questioned the justification for the project and specifically felt the energy and flood control benefits were exaggerated. Because they feel the overall NEPA process has been abused they have adopted a resolution urging that Congress request a thorough study of benefits and alternatives to the impoundment. We have attached this resolution to our testimony.

The present administration demonstrated a commitment to natural resources and a healthy environment in the statement made by President Carter, "Environmental Protection is no longer just a legislative job, but one that requires and will now receive firm and unswerving support from the Executive Branch." Timely environmental impact statements are also requested for the improvement of NEPA. The recognition of the loss of fish and wildlife in land and water projects led President Carter to hasten the protection of endangered species by directing the Secretaries of Interior and Commerce to coordinate a government-wide effort to identify all critical habitats. The possibility that these habitats are not getting early enough consideration in project planning was his reason.

The process of a substantive review of cases where there are irreconcilable conflicts between the continued existence of an endangered species and the completion of a major project should be reassessed on a case-by-case basis. It is our contention that this will improve the quality of agency decisions and make it more likely that the broad purposes of NEPA and the Endangered Species Act will be realized. If the intent of NEPA and the Endangered Species Act have been followed in good faith and an agency decides to go ahead with a project, then that project should be able to stand up to judicial and possible congressional review.

Many of the agencies of the executive branch have already recognized the need to incorporate their responsibility under the Endangered Species Act of 1973 into their ongoing programs. Unfortunately, these efforts, which include consultation under Section 7 and critical habitat designation on lands they manage, have been with little or no additional funds or manpower.

The U.S. Fish and Wildlife Service, for the Department of Interior, very appropriately assumed the major expansion of responsibilities that the Endangered Species Act of 1973 mandated. The intensive broadening of effort that this required was unfortunately not supported by a proportionate increase in funding or manpower commitments. There is no question but that this added to the difficulties in administering a program of this magnitude from the beginning--from the critical and often times controversial interpretation of the many sections of the Act to the monumental endeavor involving the assessment of the status of thousands of species, subspecies and population segments of organisms worldwide. The NWF has been long and actively

involved in much of this effort. Endangered species personnel must handle the difficult and controversial jobs of listing, classifying or reclassifying the species that are found threatened or endangered, must implement a grant-in-aid program with the states which for the majority of years since the program's inception has been inadequately funded, and must discourage abuse of Section 7 by individuals and groups concerned with species preservation while encouraging compliance with Section 7 by federal agencies. In addition, they are charged with gathering funds and manpower for new law enforcement authorities, both domestic and overseas, responding to large amounts of mail and phone calls and expeditiously responding to petitions to list, delist, or reclassify species, and implementing and reviewing recovery plans. Finally they must act as national coordinators of an international endangered species program which includes implementing the Convention on International Trade in Endangered Species of Wild Flora and Fauna.

The necessary expertise and procedures for the implementation of these and other activities has been carefully acquired by the Fish and Wildlife Service. They have met most of their responsibilities to date with a very well-considered thorough appreciation of their commitment to the purpose of the Endangered Species Act. It is our hope that these hearings result in a better understanding of the difficulties in the administration of some of the far-reaching and controversial elements of this legislation. But, more importantly, we must reaffirm our commitment to the purpose of the Endangered Species Act of 1973: saving endangered species from extinction through the forthright, expeditious and well-intentioned implementation of all sections of this legislation.

RESOLUTION RELATIVE TO THE TELlico DAM PROJECT:

WHEREAS, the Tennessee Conservation League is vitally interested in the wise use of Tennessee's natural resources and,

WHEREAS, the T.V.A.'s Tellico Dam project will destroy the last remaining free-flowing section of the Little Tennessee River, a unique river resource, and will inundate approximately 16,000 acres of prime farm and forest land, several ancient Cherokee Indian Villages, Indian mounds and two national historical sites and,

WHEREAS, the impoundment of the reservoir will destroy the habitat of the snail darter, an endangered species and,

WHEREAS, most of the benefit derived from the project is flat water recreation and industrial development and,

WHEREAS, it appears that alternate uses of the lands involved could have an equal or higher economic benefit.

NOW, THEREFORE BE IT RESOLVED that the Tennessee Conservation League through its Board of Directors, meeting May 22, 1977, hereby urges the U.S. Congress and the Tennessee Congressional Delegation to order a thorough study of the project and alternatives to impoundment and to carefully study these alternatives before making any decision to exempt the Tellico project from the Endangered Species Act.

WILDLIFE MANAGEMENT INSTITUTE

Dedicated to Wildlife Restoration
WIRE BUILDING, WASHINGTON, D. C. 20003

Statement of Daniel A. Poole
before the
Subcommittee on Resource Protection
of the
Senate Committee on Environment and Public Works
on
Endangered Species Act of 1973
July 28, 1977

Mr. Chairman:

I am Daniel A. Poole, president of the Wildlife Management Institute headquartered in Washington, D.C. The Institute's program has been devoted to restoration and improved management of renewable natural resources since 1911.

We appreciate the invitation to comment on the Endangered Species Act of 1973.

The Act was written and passed in a highly emotional public climate. Many of the suggestions offered by professional wildlife managers were lost under a deluge of letters from school children and other rightfully concerned, but unknowledgeable, people. The Act contains, therefore, some extravagant provisions that impede restoration of endangered and threatened species.

Despite this weakness, however, we hasten to point out that the Act serves a vitally important function. First and foremost, experience has shown that Section 7 of the Act offers adequate flexibility to settle conflicts between endangered species and threats to their natural habitat. A recent report by Interior Secretary Andrus, for example, noted that of more than 4500 consultations on potential conflicts, all but three were resolved by the administrative process, two were resolved in the courts, and only one (Tellico) appears left for

Congress to determine. The Act provides that final decisions as to whether a species is eliminated from the face of the earth or an endangered population from its natural habitat will be a conscious one, with full public knowledge. Thus it serves as a final line of protection for endangered and threatened species. And we would oppose any change in that protective mechanism.

There are two needed changes in the Act that we believe are appropriate for the Committee's attention at this time. Both involve the pervasive nature of its application.

About every living thing on earth (plant and animal), except designated insect pests, comes under the Act's purview. An endangered and threatened species effort of that magnitude exceeds by far the managerial capabilities, both present and future, of state and federal wildlife agencies. It is unlikely that any single federal or state agency ever will receive anywhere near the funds, manpower, or political support to even begin to approach such a herculean task. The Act's sweeping coverage causes the relatively small amounts of resources available for endangered and threatened species work to be spread so thin that little of lasting consequence can be achieved. The result is that the basic need of such species, which is improved, expanded and secure habitat, is not being attended to adequately. The original concept of endangered and threatened species programs within wildlife agencies was to help those higher forms of vertebrates normally referred to as fish and wildlife. Certainly plants were never anticipated as part of such programs. By considerably enlarging that concept, the 1973 Act may have crippled the chances to help many species.

We recommend that the Committee consider amending the Act to disperse responsibilities. Plants logically should be the responsibilities

of agencies other than those for fish and wildlife. The Forest Service and state forestry agencies, for example, are more logical administrators of endangered species programs for plants.

The second major problem with the Act concerns the state-federal partnership to manage endangered and threatened species. The 1973 Act usurped the states' authority to manage resident species classified as endangered or threatened. To regain some of that usurped authority, state wildlife agencies must qualify and enter into cooperative management agreements with the Fish and Wildlife Service. In doing so they become eligible for federal grants to assist their programs. A requirement for the cooperative agreement is that a state wildlife agency have legislative or constitutional authority to manage within its borders, all species, listed by the Service as endangered or threatened. State wildlife agencies have authority to manage most resident species generally identified as fish and wildlife. What authority that may exist for plants and lower animal forms such as insects invariably assigns responsibilities to other state agencies such as agriculture and forestry. Thus, it is impractical and certainly impossible in the near term for state wildlife agencies to comply with federal cooperative agreement requirements. It probably would take decades to encourage State Legislatures to transfer such authorities in all the states, if it is possible at all. Meanwhile, major fish and wildlife species, as may be listed as endangered or threatened, remain outside the full benefits that can be achieved under the federal-state cooperative authority of the Act.

We support the recommendation of the International Association of Fish and Wildlife Agencies to amend the Act to authorize the Secretary of the Interior to enter into cooperative agreements with states for those species which have the legislative classification and agency authority already established by state law.

In closing, we commend the Fish and Wildlife Service for a good effort at the almost impossible task of implementing the 1973 Act. With restricted funds and staff, it has performed well under the circumstances.

The state agencies also are to be commended for their work in improving endangered and threatened species programs. It will take the best of both levels of government to properly do the job. Anything that hampers that cooperative approach is detrimental to the resource, in our opinion.

SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION
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STATEMENT IN SUPPORT OF THE ENDANGERED SPECIES ACT

by Christine Stevens, Secretary
July 28, 1977

My name is Christine Stevens, and I am speaking in behalf of the Society for Animal Protective Legislation, the Fund for Animals, the Humane Society of the United States, the International Primate Protection League and Let Live.

The Endangered Species Act of 1973 is the result of careful study, extensive hearings, and substantial experience with predecessor laws, the Endangered Species Acts of 1966 and 1969. Together with our country's work on the Convention on Trade in Endangered and Threatened Species of Fauna and Flora, the 1973 Act makes the United States the unchallenged world leader in this vitally important field. This was clearly evident at the meeting held last fall in Bern, Switzerland, of the parties to the Convention, where major progress was made in developing desperately needed protection for rare species throughout the world.

In holding these oversight hearings, Mr. Chairman, we urge you to consider the proud place this nation holds at the very forefront of the international fight to prevent the extinction of species and to maintain the magnificent natural diversity of life on earth.

I would remind the distinguished members of this committee of events five years ago when U.S. proposals at the Stockholm Conference on the Human Environment were repeatedly voted down until the proposal for a ten-year international moratorium on commercial whaling was put forward by our delegation. Immediately, it received unanimous acceptance by a vote of 53-0. Although we have not yet achieved the needed moratorium, a 35% cut in quotas was voted by the International Whaling Commission meeting three weeks ago in Canberra, Australia; and, in that forum too, as I can testify from first-hand observation, the United States was the established leader without whose efforts, the endangered whales would be much closer to final, biological extinction. President Carter's message to the IWC meeting underlined his longstanding dedication to the cause of these most monumental of all endangered species, and played an important part in the progress made at the meeting.

It is with the consciousness of the responsibility of outstanding U.S. leadership, recognized throughout the world, that any consideration of modifying the Endangered Species Act should be approached. To weaken the Act, to pull back from our commitment at this critical time when so many other nations are at last beginning to

take the necessary initiatives to protect endangered species within their borders and to join in serious international cooperation to prevent the shameful smuggling and profiteering that has decimated so many species, would constitute a most serious setback to international progress. Unquestionably, it would result in the loss of many species throughout the world should the United States be seen to be retreating from its position.

The Act has demonstrated its remarkable flexibility. In the vast majority of cases it has been readily amenable to solutions which protect endangered species and, at the same time, permit appropriate development. But there has been a tendency in recent months to inspire doubt about the wisdom of the Act. For example, one day walking through a Florida airport a lead headline caught my attention: "The Dam and the Furbish Lousewort - Lowly Plant May Block \$1 Billion Project". I had never before heard of that now famous little snapdragon, the Furbish lousewort. I was still ignorant of the belief that its leaves were discouraging to lice or that a nineteenth century female botanist by the name of Furbish had discovered it some decades before an Army Corps of Engineers botanist noticed its presence at the proposed Dickey-Lincoln hydroelectric power project area. However, I immediately sensed that anti-endangered species forces were at work and I bought the newspaper for documentary purposes. The article is attached.

The reason for drawing this distinguished Committee's attention to what appears to be a rather uninspiring public relations effort that I happened on casually, is to illustrate how the public is being misled. The average poorly informed reader is encouraged to scorn the "lowly" plant, admire the hydroelectric project, and dismiss the Endangered Species Act. The bias plays upon ordinary human responses, but it fails to provide the information which normal human intelligence requires to form a sound judgment.

It is understandable that some government agencies, looking at the law from their own special viewpoint overlook the broad issues and recommend action that would undermine the United States' world leadership position. But as Dr. George M. Davis has written, "The Act's strongest provision was structured to protect a species from its greatest threat, the U.S. Government itself."

There are private interests, too, that find the requirements of the Act a nuisance to their unrestricted trading or use of endangered species. We believe the administration of the Act can and should continue to be improved and that any unnecessary delays in the granting of permits should be prevented. However, there is no need for legislative action by the Senate to make such improvements. The Executive Branch can achieve them, and we believe the new administration should be given the opportunity to prove that it can make the well-designed machinery of the Act run smoothly.

No exemptions should be made for zoos and the animal dealers that supply them. Nor should exemptions be made for falconers or other users of living or dead endangered species. There is no need to do this. On the contrary there is a vital need to maintain

the strength and vigor of the law for the sake of future generations of human beings.

In the long term, all existing species depend to some degree upon the others. But it is our species which, far more than any other, because of our wide dispersal throughout the world, needs diversity of other species. We want a good life for all members of our species in the future. That depends upon maintaining the earth at the high level of diversity which still exists. We have done a great deal of damage already, and some of it is irreparable. But now we can stop. It will not be easy. It will go against the grain in many individual cases. Nevertheless it is within our power to hold the line, to end the devastation and to cherish and protect all the species we are still lucky enough to have with us on this remarkable, beautiful and mysterious planet.

We, as a nation, can take honest credit for pointing the way for the world as a whole. Though we should have done better than we have, nevertheless, we have done better than anyone else. It is our clear duty to stand firm in that leadership role. The voices that plead with us to erode the Endangered Species Act, claiming that future disasters will overtake us if we do not change it, should be ignored. Should any genuinely serious conflict arise, the Congress can surely deal with it at that time, but no matter of serious national or international concern has arisen to date which would call for a weakening of this law. It is a law which will have meaning thousands of years from now if our species has the foresight, wisdom and compassion to preserve life on earth. Let us resist the temptation to tamper with the Endangered Species Act.

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Mostly sunny. Highs in the low to mid-80s. South-east winds 10 to 15 m.p.h. (Continued, Page 2A.)

Lowly Plant May Block \$1-Billion Project

The Dam and the Furbish Louisewort

By PATRICIA O'BRIEN
Herald Washington Bureau

WASHINGTON — It bears a name that doesn't exactly roll off the tongue, but this lowly relative of the snapdragon family grows along a bank of the St. John River in Maine, sprouting yellow-green blossoms toward the sky.

It is the furbish lousewort, and by any other name, it would cause just as much trouble.

Long thought to be extinct, the furbish lousewort was discovered last summer by a biologist on a project to build a \$1.5-billion dam would damage the forest. He found about 200 specimens of the flower in an area scheduled for flooding.

NOW THE Interior Department is think-

ing about listing the scraggly two-foot snapdragon as an "endangered and threatened species," which means the Dickey-Lincoln hydroelectric dam that would destroy it could not be built.

"I can't believe they'd stop the dam just because of the furbish lousewort. I can't believe it," moaned Dick Rose, press secretary for Sen. Edmund Muskie of Maine, a proponent of the project.

But they could under the tough provisions of the Endangered Species Act of 1973.

"THE TROUBLE is, most people who understand about listing animals would say, what, a crummy plant? Who cares about them?" said Keith Schreiner of the Fish and Wildlife Service.

"What they don't understand is how fast

we're wiping out life forms of all kinds. I'm not a soap-barrel environmentalist. I'm not against progress. But we've got to look to the future."

So far this is the first "plant-dam confrontation," as Schreiner put it. Three other controversies all involved protection of animals, that reason the department hopes to tip-toe toward what Schreiner called "a good compromise where we can have both the dam and the furbish lousewort."

UNFORTUNATELY, no one yet knows how.

The department might get Congress to exempt the project from the law or change the law itself. Or they could dig the plants up, which is a problem.

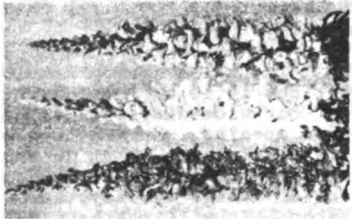
"It's got this peculiar physiology," a

spokesman explained. "Its roots grow into the roots of other plants in a way we don't fully understand and, if you dig it up, you will find it's got a very thick taproot. It will grow in on a river bank below the tree line."

("Why don't they just try?" snapped a legislative sympathizer.)

Ironically, the whole flap over the furbish lousewort wouldn't have occurred except that the Army Corps of Engineers dutifully sent in its biologist to check the terrain. Maybe he shouldn't have looked quite so thoroughly.

"That would have been cheating," the spokesman said firmly. "No fair. We've got to live with the furbish lousewort, whether we like it or not."



Snapdragon
... a species argument

TESTIMONY OF THE NATIONAL AUDUBON SOCIETY
BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUB-COMMITTEE ON RESOURCE PROTECTION REGARDING THE ENDANGERED SPECIES
ACT OF 1973, WITH SPECIAL REFERENCE TO SECTION 7, JULY 22, 1977

Mr. Chairman, members of this Subcommittee, thank you for this opportunity to testify during these important oversight hearings on the Endangered Species Act of 1973 (P.L. 93-203).

I am Dr. Michael Zagata, Washington Rep of the NATIONAL AUDUBON SOCIETY, a non-profit conservation organization with about 370,000 members organized into 394 chapters throughout the United States. As you may know, the NATIONAL AUDUBON SOCIETY is one of the oldest, largest and most experienced membership organizations devoted to conservation in general and specifically to the protection and enhancement of wildlife populations and the ecosystems upon which those populations depend for their survival.

The NATIONAL AUDUBON SOCIETY has previously testified in support of the philosophy and concepts embodied in the Endangered Species Acts of 1966, 1969 and 1973. I am here again today to defend and support the Act and the following purposes for which it was written:

- 1) to provide a means whereby ecosystems upon which endangered species and threatened species may be conserved; and
- 2) to provide a program for the conservation of such endangered species and threatened species.

It is difficult to fault the farsighted conservation ethic displayed by Congress in drafting and passing the Act (passed the House by a 390 - 12 vote). Your action in passing this legislation echoed the sentiment of the American people who are highly cognizant of the potential losses associated with the knowing demise of a species. Indeed, Leopold expressed the rationale for this type of legislation in 1949 when he wrote:

"Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question of whether a still higher 'standard of living' is worth its cost in things natural, wild and free. For us in the minority (no longer true) the opportunity to see geese is more important than television, and the chance to see a pasque flower is a right as inalienable as free speech."

It is a new thing for one species to mourn the death of another species or to take measures to prevent that death. Leopold stated this succinctly when he wrote:

"The Cro-Magnon who slew the last mammoth thought only of steaks..... But we who have lost our (passenger) pigeons mourn the loss. Had the funeral been ours, the pigeons would hardly have mourned us."

From a practical standpoint, the Endangered Species Act of 1973 was written in recognition of the following facts:

1) various species of fish, wildlife and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation;

2) other species of fish, wildlife and plants have been so depleted in numbers that they are in danger of or threatened with extinction; and

3) these species of fish, wildlife and plants are of esthetic, ecological, educational, historical, recreational and scientific VALUE to the nation and its people.

In recognizing the VALUES of endangered species, Congress, for the first time, established a system by which those species could be weighed against other valued resources during evaluations made in compliance with the National Environmental Policy Act of 1969 (NEPA) and the Fish and Wildlife Coordination Act of 1934 (FWCA). Indeed, some of the current dilemmas involving the Endangered Species Act of 1973 might have been avoided if the Water Resources Council, established under the Water Pollution Control Act of 1972 (P.L. 92-500) had set and adhered to vigorous, fair 'Practices and Standards', and the FWCA and NEPA had initially been complied with (TVA is exempt from FWCA).

It is vital to our well being that Congress has recognized that these often inconspicuous and, with our present knowledge, seemingly valueless plants and animals and their associated habitats do have value. In our society, which historically have had a highly exploitive relationship with nature, protection is not generally afforded species and/or communities lacking an economic value or the known potential of having an economic value.

This is unfortunate but true. I say unfortunate because this historic lack of concern for these 'valueless' resources demonstrates both the lack of an ecological ethic and of foresight.

We are only now recognizing, as the coal miners did years ago when they took a canary with them into the mines, that many of the 'innocuous' plants and animals do have or may someday have a value to mankind. We cannot fault these plants and animals for our current limitations in knowledge about their potential values. Who would have fought to save the mold Penicillium from extinction in the 1700's? If someone had risen in defense of this mold, they would have been labeled a quack -- or worse. Who among us knew of the value lichen communities would provide by indicating

various types of air pollutants (dust, sulfur dioxide)? We are only today discovering that the honey of honey bees may be used to monitor the level of heavy metals in the environment.

Besides the potential health benefits associated with plants and animals, there may be unknown economic benefits as well. The jojoba bean of our western deserts is an example. It was considered a noxious weed and treated as such until research results demonstrated that its oil had properties similar to those of the threatened sperm whale. Now the jojoba bean is receiving a good deal of positive attention.

In general, the animals threatened with extinction are not those that compose the early stages of ecological succession, often undergo population irruptions and are regarded as weeds or pests. Instead, they tend to occupy more stable communities, have lower biotic potentials, require rather narrow, specific habitat conditions and, in the case of animals, occupy the upper rungs of the food-chain ladder. It is for these very reasons that are so valuable to man as indicators of the impacts of various forms of natural and man-induced environmental perturbations.

The bald eagle, for example, helped demonstrate to us how persistent pesticides passed through the food-chain and became magnified in concentration as they moved from link to link. Our monitoring program indicated that aquatic levels were well within the 'safe' range. The eagle proved otherwise. Who knows what lessons we may learn from two of our latest contenders for extinction -- the snail darter and Furbish's lousewort? Both are known to have rather specific habitat requirements and thus serve as indicators of slight ecological change.

From a selfish standpoint, it is to mankind's benefit to save representative ecosystems because the communities within them may contain a plant or animal of unknown value. We may recognize other values of a community and need 'working' examples of it in order to reconstruct more. Only now do we recognize the role of wetlands in purifying our water, recharging the ground-water table, buffering floods, etc. Do we know enough about these wetlands to begin to reconstruct them for man's benefit?

Over and above the health and economic justifications for protecting endangered plants and animals is the over-riding need for a conservation

ethic. For such an ethic to be effective we must look at and value ecosystems and their associated species from more than a short-term economic or man-benefiting perspective. We must value those components of the land community because they are essential to its healthy and continued functioning. During his campaign, President Carter referred to our fish, wildlife and plant resources by saying that they act as "an indicator of our environment" and that "when they have trouble surviving we should seriously examine the quality of our environment." Congress has provided the nation with a tool to facilitate that type of examination and we commend you for it.

SECTION 7

In supporting the Act, we wish to make special reference to Section 7 which states, in part, that all Federal agencies and departments shall:

utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act and by taking such action necessary to insure that actions authorized, funded or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical.

This Section is an integral part of the Act and in harmony with

Section 2(c) Findings which states:

It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.

The temporizing phrases of earlier Endangered Species Acts (1966, 1969)

which bound agencies to conserve protected species only "insofar as is practicable given the primary purposes of such agencies" have been eliminated. Congress was emphatic!

Claims have been made and schemes designed to show that Section 7 is inflexible and therefore must be amended. The record does not support these contentions. According to a statement made by Secretary Andrus at the 1977 Annual Meeting of the NATIONAL AUDUBON SOCIETY, Section 7 of the Act is working and conflicts between the Endangered Species Act and Federal projects have been over-emphasized with most problems having been resolved through negotiations among the affected agencies. In fact, in the three years since the passage of the Act there have been about 4,500 informal consultations and 124 documented consultations between the Department of Interior (Fish and Wildlife Service) and other Federal agencies.

Of this number, only three have been unresolved via consultation and have thus been ruled upon in the courts. Of these three, two have reverted back to the agencies and one, Tellico, is being aired before Congress. It is obvious that Section 7 is working and that Congress' intent in passing the Act is being fulfilled.

The NATIONAL AUDUBON SOCIETY strongly endorses the existing mechanism for avoiding conflict with the Act and for resolving conflicts if and when they arise. We feel that the agencies involved should, in demonstrating good faith in attempting to comply with the Act be able to resolve their differences in consultation leading to research, design review, and modifications in process, design, location and timing which reconcile the competing interests.

If not, an agency may, at its discretion, proceed with an action that appears to violate the law. At this point, the judicial process may be invoked. Congress gave explicit authority in the Act to any person to file suit to enforce provisions of the Act. The courts, in hearing a case, may issue whatever order is necessary to force compliance with the law, including project modification or a moratorium.

If, after the courts have reviewed the case, no satisfactory solution can be reached then Congress should be the final decision maker. We feel that if Congress exercised its authority and judgment and called for a vigorous review of any project they are called upon to adjudicate, as it has done with Tellico, that the number of such cases would be minimal. Such a review should evaluate a project's economic and social impacts, its environmental impacts over and above any effects on endangered species, and its overall benefits.

Tellico is a good case in point. It is the first project to be in violation of the Endangered Species Act that has reached Congress. To determine why this occurred, let us examine Tellico's history with regard to NEPA. NEPA requires all Federal agencies, before taking major actions, to consider alternative actions, including actions which can only be accomplished by other Federal agencies. In good faith, an agency should take a look at the possible consequences of actions they are about to take and examine how they might impact on the Nation's interest. Each major project is to be reviewed in terms of benefits and costs, project alternatives and environmental impacts on the species including

mitigation. It was the absence of these procedures for Tellico under NEPA, owing to the protracted cause of the TVA controversy, that has resulted in Tellico being essentially an Endangered Species Act case and not a NEPA case. In other words, the fact that TVA has demonstrated disdain for NEPA and is exempt from the FWCA has put Congress in a position of having to consider amending an Act it so overwhelmingly supported. This demonstrates agency inflexibility rather than statutory inflexibility. Because the TVA continued to pursue a program which would eliminate the snail darter despite requests from Interior, from the Governor and from conservation organizations, the Audubon Council of Tennessee joined as co-plaintiffs with the Endangered Species Committee and the Southeastern Association of Biologists in litigation against TVA. The result was a ruling by the sixth circuit court in Cincinnati halting the Tellico project until an administrative or congressional ruling occurs..

In attempting to circumvent the issue of the dam's impact on the snail darter and the River valley, TVA is pursuing a transplant program in the Hiawasse River. It is important to note that the Act offers protection to the "endangered species in their natural habitat" and therefore prohibits the destruction of critical habitat as well as of the species themselves

(16USC 1536). This point is crucial when considering the use of transplantation as a mitigating measure. Merely accomplishing a successful transplant to another area does not satisfy the requirements of the Act. If successful over a protracted time and a wide range, however, a transplant program could enable the Secretary to determine that the species in question is no longer threatened or endangered.

The most difficult decision to be made in unresolved cases is whether or not the project's values exceed the values of a species, including its esthetic value. When referring to the demise of the passenger pigeon, Leopold eloquently expressed his concern for its loss:

"There will always be pigeons in books and in museums, but these are effigies and images, dead to all hardships and to all delights. Book-pigeons cannot dive out of a cloud to make the deer run for cover, or clap their wings in thunderous applause of mast-laden woods. Book-pigeons cannot breakfast on new-mown wheat in Minnesota and dine on blueberries in Canada. They know no urge of seasons; they feel no kiss of sun, no lash of wind and weather. They live forever but not living at all."

In summary, Mr. Chairman, the NATIONAL AUDUBON SOCIETY supports the Endangered Species Act as written and would strongly oppose any amendment to weaken it. We believe that man has the responsibility to take every reasonable means to ensure that his actions do not result in the extinction of any plant or animal.

We

would like to see increased funding to implement all Sections of the Act (especially Section 6) and to, as President Carter requested in his 1977 Environmental Message, identify all critical habitat. Early identification of critical habitat would facilitate agency planning and the consultation process.

Overall the agencies have done well in light of the funds available to them. We would hope that the appropriation of \$9 million to the TVA and other agencies to transplant endangered species is a demonstration of commitment to support and not subvert the Act. It is hard, however, to conceive of this amount of money being appropriated for a few projects when the National Marine Fisheries Service has been operating its entire endangered species program on a budget of about \$300,000 per year.

In our testimony we have eluded to various kinds of values associated or potentially associated with endangered species and their habitats. The key value that is approached by this act is that of an ethic for the land and its associated resources. If I might, I would like to once more quote the late Dr. Aldo Leopold:

"The 'key-log' which must be removed to release the evolutionary process for an ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

Thank you Mr. Chairman for this opportunity to testify.

For Further Information Contact:

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STATEMENT OF
MICHAEL J. BEAN
before the
SUBCOMMITTEE ON RESOURCE PROTECTION
of the
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
July 19, 1977

As a result of the Senate's reorganization earlier this year, this is the first opportunity this subcommittee has had to oversee the administration of the Endangered Species Act. In light of that, some rather fundamental observations about the nature of the act we examine today may be in order.

Quite some time ago, I perceived the need for a comprehensive and rigorous analysis of federal wildlife law. A little more than a year ago, I began work on a book that was intended to provide that needed analysis. That book was published late this spring by the Council on Environmental Quality. One of my efforts in writing it was to try to discern in that apparently random patchwork of federal wildlife laws some unifying themes, some evolving threads of national wildlife policy. Interestingly, for each of the trends that I identified, such as the steady expansion of the scope of wildlife subject to regulation and protection, the steady expansion of the recognized wildlife values to be protected and promoted through law, the encouragement of public participation in the implementation of wildlife policy, the

recognition of the need to protect ecosystems and habitat as the key to long-term wildlife conservation, and the effort to develop some sort of effective handle over the countless development decisions that adversely affect wildlife and its habitat, the Endangered Species Act of 1973 was prominent in giving them full expression. Thus, it is important for this subcommittee to recognize at the outset that the act which it must now oversee was not an aberration in the development of federal wildlife policy, but was instead an affirmation of the policy goals that have steadily evolved in this long-established area of environmental law.

In the next four days, this subcommittee will hear about a lot of relatively minor matters and it will also hear a great deal about one very major matter. That, of course, is the Act's section 7, and specifically whether it imposes unreasonable restraints and burdens on the accomplishment of various other federal programs. What the testimony you will hear in these four days will show is that in the great majority, indeed, in the vast preponderance of instances in which section 7 has come into play, it has not imposed any great burden on those other programs but has instead provided a very workable mechanism for accommodating the goals of those other programs with the need to protect endangered species and their critical habitats. The required consultation procedure embodied in section 7 enables federal officials to identify at the inception of a project or activity its likely effects upon en-

dangered species and to plan around any adverse effects that may be identified. Since this procedure has proved workable in the vast majority of instances, it is clear that if any amendment of section 7 is needed, it should only be one which is exceptionally narrowly limited and which does not impair the proven effectiveness of section 7 in the normal case of its application.

But is any amendment needed? Those who would answer "yes" point most emphatically to the recent decision of the United States Court of Appeals for the Sixth Circuit in the case involving the Tellico Dam and the endangered snail darter. Their view, it seems to me, is that notwithstanding the acknowledged importance of protecting against the avoidable loss of a unique life form, that concern is overborne where four critical factors are present: (1) a substantial commitment of resources to a major federal project has already been made at the time its adverse effects upon an endangered species first become known; (2) no modification or adjustment to the project which will avoid the proscribed effects can be made; (3) the commitment of resources is otherwise irretrievable in the sense that it cannot reasonably be recouped or diverted to some other useful purpose; and (4) the agency has acted in full good faith to identify the effects of its project on endangered species in advance of its substantial and irretrievable commitment of resources.

Opponents of any amendment to section 7 now will, I think,

contend that however Congress ought to resolve a conflict such as that hypothesized, it simply is not faced with those facts in the Tellico Dam decision. Rather, they will try to show that at least one and probably more of the critical factors that together make the strongest case for an amendment are absent. To the extent they succeed in that effort, it will be evident that the case for an amendment to section 7 rests upon an imagined set of facts yet to materialize and not upon any actual instance of section 7's application. In that regard, it should also be noted that in its petition for certiorari to the Supreme Court, the TVA is contending that the Act as it already exists does not apply in situations like that described. If it persuades the Court of that, its need for any congressional action will be obviated.

My advice to this subcommittee is that it ought to be very demanding that a compelling showing of the need for an amendment be made before it so recommends, and further that if it proposes any amendment, that amendment should be narrowly circumscribed to fit only those rare instances where the present wording of the Act forces an unacceptable result. Section 7 as it now reads is tough, and needs to remain tough. Anyone familiar with the Fish and Wildlife Coordination^{Act}, section 4(f) of the Department of Transportation Act, the National Environmental Policy Act, and the many other measures which attempt to mandate some consideration of wildlife values into agency development decisions knows all too well that where

those statutes leave any room for sacrificing the interests of wildlife to other goals, the sacrifice will always be made. In section 7 of the Endangered Species Act, Congress drew a line and said that the sacrifice of an entire species for all time was too great a sacrifice. Absent some very compelling showing that the line was improperly drawn, Congress ought to be very hesitant to redraw it now.

There is only one other matter that I wish to mention here today. That concerns the state and federal relationship under section 6 of the Act. Under the present language of the Act, for a state to enter into a cooperative agreement with the federal authorities and to be eligible to receive federal grants-in-aid, a state must have the authority to manage any federally listed resident species. The problem that has arisen is that not all states have that authority. Some state fish and game departments may want the authority to manage invertebrates, snakes, and so forth, but be unable to persuade their state legislatures to give it to them. Others may simply not want it. States in either category are excluded under section 6, notwithstanding that they may be well qualified to carry out effective conservation programs for some, but not all, endangered species.

The solution, according to some, is to change the Act so that authority to manage all types of resident listed species no longer need be a condition of state eligibility. It is hard not to sympathize with the contention that where a

state is capable of carrying out an effective conservation program for one or more listed species, it is unwise to withhold federal matching funds simply because the state lacks the authority to carry out such programs for all listed species. On the other hand, one of the vital functions of section 6 is to encourage the states to broaden their vision of the types of wildlife that need and deserve active conservation programs. By extending the carrot of federal matching dollars, the Act is designed to encourage the states to put their wildlife conservation programs on an ecologically sound basis that recognizes the diverse values of all forms of wildlife. That goal remains a proper one, and the incentive for the states to attain it ought not be eliminated. There may be a middle ground, however, that still upholds that goal while not sacrificing the opportunity to assist those conservation programs that states are capable of carrying out at present. That middle ground is simply to hold out a smaller carrot to those states that are unable to carry out effective programs for all listed species. There are a variety of ways to do this, such as by fixing a lower maximum federal share of participation for such states, or by directing the Secretary to take into account the scope of a state's program in allocating federal aid money to it. Alternatively, federal aid might be made available to those states having less than full authority, but only for a limited time, after which they would no longer be eligible for further aid

unless their authority were broadened. I offer these suggestions for your consideration because it seems to me they preserve the vital goal of not letting the states slip back into the complacent view that only the feathered, furred or finned are worth preserving.



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Statement of the
AMERICAN MINING CONGRESS
In Regard to the Endangered Species Act (PL 93-205)
Before the
Resource Protection Subcommittee
Public Works Committee
United States Senate
Washington, D.C.
July 28, 1977

Mr. Chairman and Members of the Subcommittee:

The American Mining Congress appreciates this opportunity to assist your Subcommittee in identifying, and considering solutions to, the severe problems which are being experienced in the operation of the Endangered Species Act of 1973. The American Mining Congress is a national trade association of United States mining companies which engage in mineral activities on the public lands of the United States to which the Endangered Species Act applies. My name is Jerry L. Haggard from the law firm of Evans, Kitchel & Jenckes, P.C., Phoenix, Arizona, and a member of the Public Lands Committee of the American Mining Congress.

As with much environmental legislation enacted in recent years, the Endangered Species Act speaks in

idealistic and absolute terms to accomplish desirable but limited goals without recognizing the necessity to balance the achievement of these goals with other equally important needs of the United States. This is the sort of legislation which receives much public and political support in the abstract but which creates extreme problems when it becomes necessary in the real world to balance those ideals with the other needs of the United States.

There has now been sufficient experience and litigation involving the Endangered Species Act that the need for amendment has been made clear. This Subcommittee is to be commended for holding these hearings in recognition of that need. The need for amendment arises from problems in the terms of the Act, in its administration, and in its judicial construction. We have attached to this statement specific proposed amendments to the Act and we will discuss generally in this statement the needs and purposes for these amendments.

In considering amendments which should be made to the Endangered Species Act, we urge this committee to recognize that, not only must a statute be designed to carry out its purpose, it must also be designed to safeguard against its purpose being abused. It is as important

for Congress to place a limit on the authority to achieve worthwhile goals as it is to provide the authority. Otherwise, as has been seen with the Endangered Species Act, advantage will be taken of the statute to accomplish other unintended purposes and the resulting backlash can destroy what could have been achieved by the statute.

Section 7 Problems.

We invite the attention of the Subcommittee first to the provisions of the statute which have created the greatest difficulties. Section 7 of the Act has been construed to require Federal agencies to subordinate all other national policy and statutes for which they are responsible to the preservation of endangered and threatened species. This section provides in part:

"All other Federal departments and agencies shall, . . . utilize their authorities in furtherance of the purposes of this chapter . . . by taking such action necessary to insure that actions authorized, funded, or carried by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species . . ." (16 USC § 1536).

Some of the cases which have applied the provisions of this section have gained national recognition for their extreme results. Although this Subcommittee is undoubtedly aware of

these cases, a very brief review may be helpful. One of the first cases construing Section 7 enjoined the construction of a Federally subsidized highway in an area inhabited by the Mississippi Sandhill Crane which the Fish and Wildlife Service designated (one day before the trial of the case) as a 100,000 acre critical habitat. National Wildlife Federation v. Coleman, 529 F.2d 359 (5th Cir. 1976.) The case which, of course, has received the greatest notoriety because of its most extreme effect is Hill v. Tennessee Valley Authority, 549 F.2d 1064 (6th Cir. 1977). In that case, the 6th Circuit permanently enjoined further construction on the 90% completed \$100 million Tellico Project. The court held that the absolute provisions of Section 7 required the project to be enjoined because, applying the prohibition of the regulations, the project:

"... might be expected to result in a reduction in the number or distribution of [the snail darter] of sufficient magnitude to place the species in further jeopardy, or restrict the potential and reasonable expansion or recovery of that species." (40 Fed. Reg. 17764-17765 (1975) at page 1070.)

The court, finding that the Act requires enforcement to be taken to the logical extreme, stated:

"So long as the snail darter remains on the endangered species list and its critical habitat comprises miles .5 through 17 of the Little Tennessee River, we have no recourse but to enjoin creation of the reservoir." at page 1074.

Other projects which are being threatened by endangered species designations include the Lukfata Dam in Oklahoma (\$31.5 million) and the \$1.3 billion Dickey-Lincoln Hydroelectric Project in Maine, and others. In addition to Section 7, there are other provisions of the Endangered Species Act which, if not amended, could lead to the same result.

Even before the Tellico Dam decision, the Fish and Wildlife Service had commenced applying the Endangered Species Act in a very forceful manner through regulations and policy announcements. In the proposed regulations published in the Federal Register on January 26, 1977 (42 Fed. Reg. 4868), the Fish and Wildlife Service takes the following positions:

1. Section 7 requires that every action proposed by every Federal agency which might modify a critical habitat or listed species must be presented to the Fish and Wildlife Service for advice.

2. Section 7 requires that the Endangered Species Review procedures must be in addition to National Environmental Policy Act reviews.

3. Section 7 prohibits the exemption of advanced Federal projects from review.

4. Applying Section 7, the Fish and Wildlife Service has developed the concept of "critical habitat" to mean the present habitat of a listed species plus additional areas for expansion.

Further illustrating the inflexibility of Section 7 and the view that the Act supercedes all other national interests are the following statements of the Fish and Wildlife Service in proposing the critical habitat for the grizzly bear on November 5, 1976:

"A Critical Habitat designation must be based solely on biological factors It would not be in accordance with the law to involve other motives; for example, . . . to reduce a delineation so that actions in the omitted area would not be subject to evaluation." (41 Fed. Reg. 48758).

Administrative Problems.

The pervasive and extreme nature of the Endangered Species Act has been extended by the administrative

system being established by the Fish and Wildlife Service. The system has developed into a multi-step process which leads toward excessive listings of species, excessive designations of critical habitats, inadequate opportunities for the expression of public opinions and excessive restrictions on land uses which may be more important than their effects on listed species.

Abuse For Other Purposes.

The first step in the system is the process for the listing of endangered or threatened species. This may begin by anyone petitioning the Secretary and providing "substantial evidence" for the listing of a species as endangered or threatened. Recognizing that many petitions are submitted to carry out the legitimate purposes of the Endangered Species Act, others are not. For example, in the Tellico Dam case, environmental groups first succeeded in stopping work temporarily on the project by suing under the National Environmental Policy Act. When that injunction ran out, some of the same interests involved in that suit caused a petition to be filed to list the snail darter as an endangered species which led to the present injunction under the Endangered Species Act. It is reasonable to conclude that the motive for this action was more to

stop the development than to save the snail darter. Similar actions are being carried out by environmental groups in other parts of the country and the probability exists that this device to halt land uses will be used with increasing frequency.

Criteria For Listing Species.

The criteria in the statute and regulations for listing endangered species or threatened species is extremely broad. The statute defines "endangered species" to mean any species which is in danger of extinction throughout all or a significant portion of its range, and a "threatened species" is any species which is likely to become an endangered species. (16 USC § 1532). These terms have been expanded by the Fish and Wildlife Service regulations through an example of the "ABC sparrow". In 50 C.F.R. § 17.50, the example is given as follows:

"Suppose the ABC sparrow is listed as endangered in only a portion of its range. Within the meaning of the Act, the ABC sparrow is defined by geographical boundaries as a 'species'. The ABC sparrow which occurs beyond those boundaries is a different species, even though it is identical, except in location, to the listed species."

The opportunities for listing unlimited numbers of species through this device is clear. Almost every species of

plant or animal has adapted to certain climates, latitudes and altitudes, and, while abundant in their central area, their population may grade from abundance to zero in other areas. If these fringe areas are regarded as being a "significant portion" of its range, the species, although abundant in some areas, may be listed as endangered or threatened. The result is that the entire United States could be covered with separate fringe areas by species grading from abundance to zero population.

Next comes the "look-alike problem". The statute (16 USC § 1533(e)) authorizes the secretary to treat any species as an endangered or threatened species even though it is abundant, if he finds that such species resembles an endangered or threatened species. This means that, if an abundant species has undergone a sufficient mutation to create a similar but separate species, both species must be declared endangered or threatened. For example, because four endangered species of the genus *Allium* have been proposed for listing among the 1,700 endangered and threatened plants, the entire genus of this wild onion with its 70 species in North American might have to be placed on the endangered or threatened list.

When the Endangered Species Act was passed in 1973, it appeared that Congress had in mind that the number of animal species threatened with extinction in the United States was in the range of 100 and in the range of 300 in foreign countries. (Senate report No. 93-307, July 6, 1973, Commerce Committee.) By 1975, there were over 400 animal species listed in the United States. By 1976, 598 animals had been listed and the Fish and Wildlife Service proposed the listing of 1,700 plants. (41 Fed. Reg. 27381.) As of October, 1975, the Department had received 19 petitions requesting the listing of 23,962 species of domestic and foreign plants and animals. Now, figures in the area of 200,000 to 300,000 species worldwide are being mentioned as qualifying for threatened or endangered status. This demonstrates clearly that the Endangered Species Act must be amended to limit the number of species which may be listed as endangered or threatened.

Critical Habitat.

Once an endangered or threatened species has been listed, the approach of the Fish and Wildlife Service is that it is "both necessary and desirable, whenever and wherever possible, to designate 'critical habitats'" for those species. (40 Fed. Reg. 17765.) The FWS defines "critical habitat" to mean "any... area...the loss of which

would appreciably decrease the likelihood of the survival and recovery of a listed species...Critical habitat may represent any portion of the present habitat of a listed species and may include additional areas for reasonable population expansion." (42 Fed. Reg. 4871.)

Once the endangered species has been listed and the critical habitat has been designated, Section 7 of the Endangered Species Act applies to all Federal, or Federally assisted, actions which take place in the area and prohibits actions which jeopardize the continued existence of the endangered or threatened species or results in the modification of their habitat. The result of this prohibition has been seen in the cases mentioned above.

Administrative Procedures Preclude Meaningful Comment.

One of the difficulties which has arisen in this system established by the FWS is the staged sequence of the steps in the system. First, the listing of endangered or threatened species is proposed for public comment. The mass of the public does not have the technical ability or information to make knowledgeable comments on such proposals. Although the statute requires that there must be "substantial evidence" to warrant consideration for listing a species (16 USC § 1533(c)(2)), at least some of the

substantial evidence which has been accepted has been limited to a few cryptic notes on the occurrence of the species. Further, attempts to obtain from the FWS the basis on which such proposals are made have been met with little success.

After a species has been established as endangered or threatened, the FWS establishes the critical habitat for that species. It is not until this point is reached that the communities and persons within or near the designated critical habitat realize that they have been affected by the previous listing of the species. For example, the bald eagle has been listed as an endangered species in 48 states and a threatened species in 5 others. (41 F. R. 28525.) Most of the communities and people who will be affected by such listing will not become aware of the effect of the listing and will have less reason to comment on the proposed listing until the critical habitats are designated. It is then too late to have any influence on the species listing.

Meaningful comment on proposed designations of critical habitats is precluded further by there being no way of determining what restrictions Federal agencies will choose, or will be required, to apply in these areas. For example, in the proposed designation of the grizzly bear

critical habitat, the FWS states only that "there may be many kinds of actions which can be carried out within the critical habitat of a species which would not be expected to adversely affect the species." (41 Fed. Reg. 48758). The FWS states only that it is the responsibility of the Federal agency having jurisdiction over the area to control the actions in the critical habitat. Such statements are of no assistance when the public is not advised of the kinds of activities which cannot be carried out in the critical habitat.

Excessive Power of Fish and Wildlife Service.

This leads to the final step in the system which provides the FWS with a near veto power over proposed actions by other Federal agencies based upon the sole consideration of protecting endangered species. In the January 26, 1977 edition of the F. R. (42 Fed. Register 4868), proposed provisions for "inter-agency cooperation" were published by the FWS. These regulations would require each federal agency proposing to take an action which may affect a listed species to carry out a formal consultation process with the FWS. The FWS provides biological opinions and recommendations on the effect of the proposed actions and "it will then be the responsibility of the Federal agency to determine whether and how to proceed in light of

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its Section 7 obligations." The circle is completed by reference to Section 7, as noted above, which prohibits any federal agency from carrying out any action which would jeopardize the existence of the endangered species or destroy or modify the habitat of the species. Once the FWS provides its opinion that another agency's proposed action will adversely affect a listed species or its habitat, Section 7 applies to prohibit the action regardless of other national benefits the action would provide.

The Fish and Wildlife Service states assurances that it has no authority to dictate to other Federal agencies the actions necessary to comply with Section 7. Although it is true that the statute provides no such authority, the effective power of the FWS to do so has been demonstrated. In National Wildlife Federation v. Coleman, the court enjoined the Secretary of Transportation from continuing the highway project until the Secretary of the Interior (Fish and Wildlife Service) approved the project.

Furthermore, once the FWS presents negative comments on a proposed action, the citizens suit provisions of the Act (Section 11(g)) provide adequate means to halt any action of a federal agency on the basis of endangered species protection alone without any regard to other

responsibilities of the agency. The citizen suits can be brought by any citizen whether they have an interest in the species or whether their sole purpose is to stop the federal action by any means. The most recent example of this is in the Tellico Dam case, where the court observed that this was the third time in five years in which environmentalist have attempted to stop the Tellico Dam and the reservoir project. They succeeded through Section 7 of the Act.

Conclusion.

Mr. Chairman, we urge your committee to recognize the extremely serious threat which the Endangered Species Act and its administrative system pose to the United States. Although a rational system to prevent unnecessary harm to endangered or threatened species is a desirable national goal, this goal must be balanced with other equal or more important programs and goals which the United States government must carry out. We urge your Subcommittee to give serious consideration to, and adopt, the amendments we have attached to this statement.

Thank you for your attention and for the opportunity for the American Mining Congress to present to the Subcommittee these changes which should be made in the Endangered Species Act of 1973.

AMENDMENTS PROPOSED BY
THE AMERICAL MINING CONGRESS
TO THE ENDANGERED SPECIES ACT OF 1973

1. Amend the first sentence of paragraph (2) of Section 3 (16 USC § 1532(2)) to read as follows:

"The terms 'conserve', 'conserving', and 'conservation' mean to use and the use of all methods and procedures which are consistent with other national policy and law to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary."

2. Delete the phrase, "throughout all or a significant portion of its range" in paragraphs (4) and (5) of Section 3 (16 USC § 1532(4) and (5)).

3. In paragraph (11) of Section 3, change the word "any" in the first and second lines to "only those" and add at the end of the sentence "and which are endangered or threatened".

4. Delete the following phrase from subsection (c)(1) of Section 4 (16 USC § 1533(c)(1)):

"and shall specify with respect to each such species over what portion of its range it is endangered or threatened."

5. Add the following phrase to the first sentence in paragraph (d) of Section 4 (16 USC § 1533(d)):

"and which are consistent with other national policies and laws."

6. In the first sentence of paragraph (e) of Section 4 (16 USC § 1533(e)) delete the words "he deems necessary" and insert the following in lieu thereof:

"necessary to protect endangered species or threatened species."

7. Add the following sentence to paragraph (e) of Section 4 (16 USC § 1533(e)):

"Such species may be treated as an endangered species or threatened species only within the same range inhabited by the endangered or threatened species."

8. Add the following subparagraph (4) to paragraph (f) of Section 4 (16 USC § 1533(f)):

"Each publication in the Federal Register of a proposed listing of each endangered or threatened species shall be accompanied by the publication of proposed critical habitat designations for such species and shall also be accompanied by criteria sufficiently specific to determine the nature of actions which would and would not jeopardize the continued existence of such endangered species or threatened species."

9. Amend Section 7 (16 USC § 1536) to read as follows:

"The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this chapter to the extent that such utilization does not conflict

with the purpose of such other programs or with other national policies and law. All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this chapter to the extent that such consultation or utilization does not conflict with the purposes of such other authorities or with other national policies and law."

10. Delete paragraph (g) of Section 11 (16 USC § 1540(g)).

11. Add the following new section to the Endangered Species Act:

"Section 18. Notwithstanding any other provision of this Act or of any other law, an action taken by any Federal department or agency involving the designation of endangered or threatened species or of any area or areas as critical habitat of endangered or threatened species shall be deemed to be a major Federal action significantly affecting the quality of the human environment requiring the filing of an environmental impact statement under National Environmental Policy Act of 1969. Such action shall also require the preparation of an economic impact statement considering, among other things, the following categories of impact:

1. Cost impact on consumers, businesses, markets and federal, state and local governments;
2. Effect on productivity of wage earners, business, or government at any level;
3. Effect on competition;
4. Effect on supplies of important resources, products, or services."

Statement

of

ROBERT O. WAGNER

on behalf of the

AMERICAN ASSOCIATION OF ZOOLOGICAL PARKS AND AQUARIUMS

in connection with

Legislative Oversight Hearings

on the Endangered Species Act of 1973

before the

SUBCOMMITTEE ON RESOURCES PROTECTION

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

Washington, D.C.

July 28, 1977

Mr. Chairman, Members of the Committee:

Thank you very much for the invitation to the American Association of Zoological Parks and Aquariums (the "AAZPA") to have representatives appear before you today.

My name is Robert O. Wagner. I have been Executive Director of the AAZPA since May 1975. Prior to that, I was Director of the Jackson, Mississippi Zoological Park for 11 years. I am also a former Vice-President and Director of AAZPA.

I. BACKGROUND OF THE AAZPA.

The American Association of Zoological Parks and Aquariums was founded in 1924. The AAZPA initially was a branch of the American Institute of Park Executives; it then became a branch of the National Recreation and Park Association. In January 1972, the AAZPA was established as an independent nonprofit organization.

The membership of the AAZPA consists of "professional fellow and fellow members" (primarily individuals employed full-time in a management capacity on the administrative, scientific, maintenance or supportive staff of a zoological park or aquarium in the Americas); "associate members" (persons interested in the objectives of the Association, including zoological park and aquarium personnel); "institutional members" (zoological parks and aquariums, zoological park and aquarium societies, private wild-life exhibitions, game preserves and related entities); and "commercial members" (companies, individuals and consultants which supply and service the zoo, aquarium and conservation fields).

The AAZPA membership presently numbers approximately 2,000. Included in this membership are approximately 200 zoological parks, aquariums, wildlife parks and oceanariums, as well as zoological and aquarium societies with total membership of approximately 250,000 persons.

Every major zoological park and aquarium in the United States is a member of the AAZPA, making it the largest organization of its type in the world. The membership also contains the professional staffs of these organizations, who are among the most experienced persons in the United States in the care and handling of wildlife. The AAZPA is the spokesman for these organizations and their personnel, governing bodies and zoological societies.

The Association also has an interest in preserving and enhancing the wildlife collections of its members. These collections make an important contribution to the education and enjoyment of the more than 100,000,000 persons who annually visit these collections in the United States.

Undoubtedly, the most significant contribution zoological parks and aquariums have made to wildlife conservation is in the area of public education. With well over 100,000,000 visitors annually, zoological parks and aquariums have an unmatched opportunity to build understanding of wildlife problems. Many major zoological parks and aquariums have education programs, in which conservation is a major theme. Just over 70% of the U.S. populace live in urban and suburban areas. For these people, zoological parks and aquariums are "urban national parks" where they have a personal contact with and exposure to wild animals - for the great majority the only first-hand contact.

Internationally, both in scientific and in conservation matters, the AAZPA is looked upon as the leader among national zoological park and aquarium organizations. By request, all international zoo federations have sought communication with the AAZPA on scientific and technical matters. The AAZPA has since 1963 been a member of the International Union of the Conservation of Nature and Natural Resources and a leader in its Survival Service Group. Prior to 1966, international trade in live wild animals was virtually uncontrolled, except for health regulations. In 1966, the AAZPA adopted a resolution binding its members to acquire wild-caught orang-utans only if there was evidence of legal export from country of origin. Subsequently, the Japanese and several other zoo federations adopted similar policies. This action was lauded by IUCN for its far-reaching effect around the world and as a pace-setting policy. In subsequent resolutions, AAZPA members extended the same protection to other endangered species.

II. EARLY EFFORTS OF THE AAZPA TO PROMOTE PROTECTION OF ENDANGERED SPECIES.

The AAZPA has been in the forefront of worldwide efforts to protect endangered species. Indeed, the AAZPA in 1967 was responsible for popularizing the phrase "endangered species," which for some years prior to that had appeared on exhibit display signs at zoos.

In March 1967, before the Federal government expressed any concern with endangered species, the AAZPA adopted resolutions binding the membership on dealings in such species. I have set forth below the complete text of the resolutions. I am sure you will find a startling similarity between the language we used in 1967 and that used in the Endangered Species Act of 1973:

"WHEREAS: The members of the American Association of Zoological Parks and Aquariums share the world-wide concern for preserving rare and endangered wildlife species. We commend and support the efforts of conservation and zoo authorities in our own and other nations to protect wildlife populations by measures such as maintenance of preserves, regulation of hunting and trapping, and control of the traffic in wild animals and wild animal products.

A minority of the threatened species are represented in zoo collections. In most instances, the chief threat to such species is alteration of their habitats. In almost all cases, the number of specimens collected for zoos is insignificant by comparison with the number killed for meat, trophies, hides, horns, and other purposes, and the number collected for the pet trade and laboratory use.

A number of the threatened species are inadequately protected in the wild, so that their preservation seems improbable. In such cases, and with the concurrence of conservation groups, we advocate judicious collection and placement of specimens in zoos or other centers capable of propagating these species in captivity.

For a few species, however, zoo collection can add significantly to the drain on an endangered wild population. This is especially the case if zoo purchases encourage or support illegal capture or smuggling. In such cases, the members of this Association stand ready to impose responsible self-discipline upon themselves and to cooperate with international conservation groups and zoo associates in other countries.

NOW THEREFORE BE IT RESOLVED:

1. That the members of the AAZPA recognize that the Monkey-eating eagle (Pithecopaga jefferyi), the Javan rhinoceros (Rhinoceros sondaicus), and the Sumatran rhinoceros (Didermoceros sumatrensis) are so gravely endangered that removal of a single individual from the wild contributes significantly to their jeopardy. No member of this Association will purchase, offer to purchase, sell, offer to sell, capture, encourage the capture of, donate, accept as a gift or deposit, or trade any individual of these species. Excepted from this provision are specimens made available by a government or conservation body, if the AAZPA Subcommittee on Endangered Species approves the specific case.

2. That the members of the AAZPA recognize that the illegal capture and subsequent traffic in Orang-utans (*Pongo pygmaeus*) and the Galapagos and Aldabra tortoises (*Testudo elephantopus*) are significant threats to the survival of these species. No member of this Association will purchase, offer to purchase, sell, offer to sell, capture, encourage the capture of, donate, accept as a gift or deposit, or trade any member of these species, unless: The Subcommittee on Endangered Species of the AAZPA determines that a specific member of such species was legally collected and removed from its country of initial origin; or that it was born in a recognized zoo; or that it has been made available through international agreement on disposal of confiscated animals; or that the animal in question was in a recognized zoo collection prior to February 1966. (This action does not interfere with transactions completed prior to the approval on March 14, 1967 of this resolution as it concerns the Aldabra tortoise.) The membership of the AAZPA empowers the Subcommittee on Endangered Species to make such determinations.

3. That the Board of the AAZPA, by a two-thirds vote, which may be taken by mail or telephone, may add new species or subspecies to those named in Sections 1 and 2 above, and such additions shall take effect on proper notification of the membership. Such additions shall be effective only until the next regular meeting of the membership.

4. That any member in any classification of the Association acting in violation of this Resolution shall be subject to disciplinary action, including expulsion, by the procedures set forth in the Constitution and Bylaws of the Association.

5. That any member in any membership classification of this Association who is convicted through proper judicial process, of violating the wildlife protection laws of any nation may be subject to disciplinary action, including expulsion, for conduct prejudicial to the welfare of this Association. In such case, the Board shall give full consideration to all surrounding circumstances.

6. That a Subcommittee on Endangered Species shall be established and maintained under the guidance of the Association's Conservation of Wildlife Committee. This Subcommittee shall maintain cooperative relationships and exchanges of information with our government's officials responsible for animal import regulations, with the IUCN and other national and international conservation groups, and with other zoo associations. The Subcommittee shall gather information on the status of rare and endangered species and on the measures adopted to protect them, including laws and regulations, and make this information

available. The Subcommittee shall also seek to gather information on the traffic in animals illegally captured or exported.

7. That this Resolution shall substitute for and supersede a Resolution promulgated in September 1962 by AAZPA, relating to endangered species, with the exception of the Aldabra tortoise, added to this resolution at this time.

8. This Resolution, or any amendments thereto, shall be deemed effective upon publication in the AAZPA NEWSLETTER and/or upon receipt of a copy of the resolution by the recipient member, whichever date comes first.

9. That, on advice of Counsel, the Officers of the AAZPA may make technical changes in the phrasing of this resolution which do not affect its substance and intent."

Periodically, after March 1967 the resolutions were amended to add other species as endangered. Then, in 1969, our membership actively supported adoption of the Endangered Species Act of 1969. Unfortunately, Congress did not call upon the expertise of the zoological institutions of the United States for assistance on the bill that became the Endangered Species Act of 1973.

III. PROBLEMS ENCOUNTERED BY MEMBERS OF AAZPA WITH USDI ADMINISTRATION OF THE ENDANGERED SPECIES ACT OF 1973.

As mentioned previously, the members of AAZPA were totally supportive of the Congressional intent with both the 1969 and 1973 Endangered Species Acts. However, Mr. Chairman, we continue to have serious and far-reaching problems with Interior's interpretation and implementation of the Act. It is imperative that members of Congress understand that the Association's members do not have any quarrels with very stringent permit requirements for the removal of any endangered species from the wild. In fact, we are totally supportive of the permit procedures and only urge that Interior speed up the

handling of such permit requests, especially those from institutions and individuals who have previously applied and have been granted such permits.

Our problems with Interior's interpretation and administration of the Endangered Species Act of 1973 are primarily directed to the permit procedure required for the movement of captive-born endangered species from one professionally operated zoological park to another. Such movement is done for the enhancement of endangered species and is often handled through professional animal dealers who are also members of our Association. Contrary to what the department suggests, permit procedures continue to take entirely too long and have caused many zoological parks, aquariums, wildlife parks and oceanariums, as well as individuals, to separate breeding pairs of endangered species. Interior requires that zoological parks and/or individuals to first obtain an endangered species permit for the movement in a commercial activity of captive-born endangered species, even though the parents of such captive-born species may have been in captivity or a controlled environment prior to December 28, 1973, the date the Act was signed into law. It has been and continues to be the contention of the American Association of Zoological Parks and Aquariums that the prohibition on the movement of captive-born endangered species has absolutely no bearing upon the extant wild populations of endangered species. Interestingly, it takes Interior as long to process a permit for the movement in a commercial activity of a captive-born endangered species as it does for them to issue a permit to remove an endangered species from the wild.

Mr. Chairman, I would like to cite some classic examples of what we feel is bureaucratic mishandling of permit requests. The Cincinnati Zoo made an application to purchase two captive-born Bengal tigers on January 6, 1977.

The Federal Wildlife Permit Office did not request Cincinnati to provide additional information, so it was assumed that the application was in order. However, such application was not published in the FEDERAL REGISTER until March 28, 1977. The permit was not issued until the 16th of June - nearly five months after the Federal Wildlife Permit Office received a complete and comprehensive application. Please understand that Cincinnati's application was for the purchase of two captive-born Bengal tigers and was thus a noncontroversial permit application.

Another example was an application filed by the Dallas Zoo to purchase two captive-born Bactrian camels. The application appeared in the FEDERAL REGISTER on March 8, 1977. The permit was not issued until the 16th of June. In both the Cincinnati and Dallas cases, several telephone calls urging action were required before permits were issued. Mr. Chairman, both the Cincinnati and Dallas zoos are among the finest in the United States with excellent, professional staff members. Again, both applications for permits were complete and both institutions simply requested the right to receive, in the course of a commercial activity, captive-born endangered species. These are but two examples among many others which underscore the frustration of our members in their programs of captive maintenance and the propagation of endangered species in captivity. It is without a doubt that such frustrations have caused many of our members to no longer breed endangered species in captivity. Each time this Association has appeared before members of Congress or have discussed our problems with Interior officials, we are assured that progress in the bureaucratic procedures will be forthcoming shortly. However, we have seen little or no such progress.

The Department of the Interior has finally, after nearly 3½ years, established Captive Self-Sustaining Populations which, in their stated opinion, greatly alleviates the permit requirements for zoological institutions, circuses and other holders of endangered species. Interior suggests that the establishment of CSSP's will enhance the breeding activities of endangered species in captive environments and will allow persons obtaining permits under CSSP to traffic in such established animals with much less paper work than has previously been required. The American Association of Zoological Parks and Aquariums vehemently disagrees with Interior's contention regarding CSSP's. Mr. Chairman, the Department of Interior issued a proposed rulemaking establishing CSSP's in the FEDERAL REGISTER on May 5, 1976 and did not publish a final rulemaking until June 1, 1977. Therefore, it took Interior 13 months to determine that 11 species held in captivity in the United States were eligible for CSSP status. Moreover, by their own admission, Interior received only 52 comments on the proposed rulemaking. Further, they indicated the response was overwhelming that endangered species born in captivity should continue to be controlled by the Department of Interior. We question the validity of that statement. Of the 52 responses, Interior states that 17 were submitted by zoos and zoological societies, 9 by bird breeders and 4 by circuses and related organizations and 1 by an animal dealer. These figures reflect that 31 of the 52 responses received were from zoos and related organizations. Mr. Chairman, nearly every zoological park and aquarium director in this country believes that responsible zoological parks and aquariums and other responsible parties should be allowed to traffic in captive-born endangered species with no interference from or regulations by the Department of the Interior. Interior further spells out permit requirements for persons wishing to traffic in Captive Self-Sustaining Populations in their published final rulemaking. We have found that the permit requirements under Interior's Captive Self-Sustaining Population rulemaking are at least as difficult to

comply with as the requirements for a permit to remove an animal from the wild. I shall just briefly touch on some of the requirements for a permit to traffic in CSSP's. The applicant is required to list the species to be authorized by the permit, he must give a complete description, including photographs or diagrams of the area or facility where such wildlife will be maintained, a detailed resume of the technical expertise of those to care for the wildlife covered by the permit, a detailed record of the mortalities involving the species covered in the application and held by the applicant for five years preceding the date of the application, the steps taken by the applicant to avoid or decrease such mortalities and a statement of the reasons why the applicant is justified in obtaining such a permit.

These are but some of the requirements for permit applicants. This is, Mr. Chairman, in the opinion of the Fish and Wildlife Services, a simplified procedure for freer movement of captive-born endangered species. I remind you that after the receipt of such a permit, the permittee may only do so for up to two years. To underscore the problems our members are having in complying with the requirements for a permit under Interior's CSSP provision, the very fine Riverbanks Zoological Park in Columbia, South Carolina recently applied for a CSSP permit and was requested to furnish the Federal Wildlife Permit Office with photographs of the area in their zoo where CSSP listed animals would be displayed. It is interesting to note that the Riverbanks Zoological Park has received five Endangered Species Permits since December 28, 1973 and has never been requested to furnish photographs of the display area. The Zoological Society of San Diego recently applied for a permit under the CSSP provision. It is my understanding that the permit application required 75 typewritten pages and more than 40 man hours to complete. Again, this is Interior's response to a simplified procedure for moving captive-born endangered

species. Assuming that it took the Department of the Interior 13 months to establish 11 species as CSSP's, an elementary student in mathematics could determine from Interior's past record that it would take Interior nearly 10 years to determine the eligibility for CSSP status of those animals that we feel are eligible for such consideration.

Members of the American Association of Zoological Parks and Aquariums are not here today to chastise employees of the U.S. Department of the Interior, because we feel that most of them are highly dedicated career employees who must interpret permit requirements as handed down to them in a regulatory scheme. However, we urge members of this committee to review the tremendous time lag in the issuing of permits under the Endangered Species Act and, more importantly, to review the whole matter of CSSP. We urge this committee to consider an amendment to the Endangered Species Act of 1973 which would allow exemptions of any endangered or threatened species which was bred and born or hatched in captivity, provided that the owner shall have previously filed with the Secretary of the Interior a notice of intention to engage in interstate shipments of captive-born endangered species; that such notice of intention shall contain the following information:

1. A listing of all endangered or threatened species on hand at the time of filing the notice.
2. An agreement to keep a complete accounting of all acquisitions and dispositions of endangered or threatened species.
3. An agreement to file an annual report with the Secretary of Interior listing all transactions in endangered or threatened species.
4. An agreement to commercially traffic in endangered or threatened species only with parties who have filed a similar notice of intention with the Secretary of Interior.

Mr. Chairman, our Association is of the opinion that such an amendment would provide the necessary checks and balances to insure that

captive-born endangered species were only trafficked in by responsible institutions or individuals and that such an amendment would provide the Department of the Interior with much more staff time and money to properly pursue the much-needed protection of endangered species in the wild and their rapidly diminishing habitats.

Thank you.

PROPOSED AMENDMENT TO THE ENDANGERED SPECIES ACT

The Endangered Species Act is amended by adding at the end of Section 9 the following:

"(h) Nothing in this Section shall be deemed to prohibit interstate commerce of any endangered or threatened species that was bred, and born or hatched, in captivity, providing

- (1) that the owner shall have previously filed with the Secretary a notice of intention to engage in interstate shipments as provided in this paragraph;
- (2) that such notice shall be good for not more than 2 years from the date of filing; and
- (3) that the notice of intention shall contain also the following:
 - (a) a listing of all endangered or threatened species on hand at the time of filing the notice,
 - (b) an agreement to keep a complete accounting of all acquisitions and dispositions of endangered species,
 - (c) an agreement to file a periodic report with the Secretary listing all transactions in endangered or threatened species, and
 - (d) an agreement to sell endangered or threatened species under this paragraph only to parties who have filed a similar notice of intention to engage in interstate shipments as provided in this paragraph.

The Secretary may reject the filing of a notice of intention, upon determining that the party submitting it has, within the previous two years, engaged in transactions that were contrary to the purposes of this Act."

PROPOSED AMENDMENT TO THE ENDANGERED SPECIES ACT

Section 9 of the Endangered Species Act of 1973 (87 Stat 884, 16 USC 1531-43) is amended by redesignating "Section (g)" as Subsection "(h)" and by inserting after Subsection (f) the following:

"(g) 1. It is unlawful for any person to steal, remove, maim, injure or otherwise harm or to interfere with or hinder the care and maintenance by its lawful permittee or holder. of any endangered or threatened species that is lawfully taken or held under this Act and the regulations or permits issued pursuant hereto, or of any species listed in Appendix I, II, or III of the International Convention that is lawfully imported or held under that Convention and the laws, regulations or permits issued pursuant thereto."

2. Section "(b)" is amended by striking "or (g)" before "of Section 9 of this Act." in the first sentence and inserting instead "(g), or (h)."



STATEMENT OF
MR. ROGER THACKER
PRESIDENT
NORTH AMERICAN FALCONERS ASSOCIATION
NORTH AMERICAN PEREGRINE FOUNDATION

in regard to

Oversight Hearings
Endangered Species Act 1973
before
Senate Environmental & Public Works
Subcommittee on Resource Protection
Washington D.C.
July 1977

July 1977

Prepared by: North American Falconers Assoc.
Route 1, Box 81
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Associate Member Organization, National Wildlife Federation



Statement of Mr. Roger Thacker
 President - The North American Falconers Association
 President - The North American Peregrine Foundation
 before
 Senate Environmental and Public Works Subcommittee
 July 1977, Washington D.C.

Mr. Chairman and members of the Subcommittee, I am Roger Thacker, President of the North American Falconers Association and the North American Peregrine Foundation. The former organization is dedicated to the wise conservation and management of our birds of prey and the furtherance of the field sport of falconry as a legal activity; while the latter is dedicated to raising funds for and is actively involved with the breeding of falcons in captivity for both scientific and recreational purposes. On behalf of both organizations I appreciate the opportunity to testify today.

These organizations that I speak on behalf of strongly supported the passage of the 1973 Endangered Species Act, however, today we feel that in several areas of this same Act modifications are required if the basic intent of the Act itself is to remain helpful to certain endangered species, and if we are not to become overwhelmed by red-tape.

In particular I refer to two native subspecies of the Peregrine falcon (Falco peregrinus anatum & tundrius) which have been used for years in falconry endeavors and which have also been listed as endangered by the U.S. Fish & Wildlife Service. Since birds of prey have been trained for falconry this species has been of interest to falconers. Indeed modern falconers were among the first to detect a significant decline in the wild populations because of pesticides contamination and while scientists were still trying to fathom this decline it was falconers unaided by governmental sources who initiated captive breeding programs to avoid extirpation of the species. Under controlled conditions natural hazards which commonly take a 60%+ toll on immature wild birds have been eliminated, and using techniques such as double clutching, artificial insemination, and photoperiod adjustments we have been able to substantially increase productivity. Due to falconers efforts 1977 may well see at least 110 Peregrine falcons being bred in captivity in the United States alone with in excess of 500 in the last six years in North America. In addition several hundred non-endangered raptors have been bred thereby demonstrating the effectiveness of captive propagation. Without doubt the programs of captive raptor breeding have been the success story of the decade in wildlife conservation and have allowed us to commence reintroducing Peregrine falcons into the wild in an extraordinary short period. From these results we believe we can look for a fully restored viable wild population within 15 years. (Canadian Field Naturalist, #2 1976)

Associate Member Organization, National Wildlife Federation

I must emphasize that all the aforementioned falcons were bred by falconers, be they professionally biologists or private citizens. I must also point out that the large majority of breeders are operating on a private as opposed to an institutional basis and that these individuals have devoted their time, money, and birds to the conservation of the species and in the hope of developing a captive bred population from which surplus birds could be used for recreational purposes. Audubon November 1975 carried an excellent article on these propagation and reintroduction activities.

Section 2(a)(5) of the Endangered Species Act speaks of "encouraging interested parties and a system of incentives to develop and maintain conservation programs". Yet we find in the federal regulations promulgated under the authority of this Act and the Migratory Bird Treaty Act that the recreational use of post-Act progeny of pre-Act taken parent birds is forbidden. (Ref: 50 C.F.R. 17. 11 (b) and Federal Register, 41 (10): 2237, January 15, 1976)

Specifically Section 9 (2) (b) allows for the exclusion from the Act of species held in captivity at the time of the effective date of the Act. It is our position that this exclusion logically extends to any progeny of such parent stock. Unfortunately the Department has not interpreted this Section in the same manner, but has become increasingly restrictive over the total issue. In offering the original inclusion of Section 9 from the floor of the Senate, Senator John V. Tunney stated "I submit an amendment to exempt from the prohibitions of this bill present owners of certain endangered species."

This amendment would exempt The Government has made several attempts in the recent past to prosecute individuals attempting to enhance the condition of endangered species for seemingly technical violations of the law".

The question must be asked - was it the intent to exempt only one generation? We think not. To prohibit dedicated individuals from using captive bred progeny in falconry serves no constructive purpose. Such use is nonconsumptive of wild populations and is considered by biologists to be an important component of recovery plans for the Peregrine (Ref: Proceedings of the Conference on Raptor Conservation Techniques, Raptor Research Report #2, 89-104). At best such a prohibition will serve only to discourage and demotivate the very individuals whom the Congress intended to stimulate - those who have to date given generously and accomplished everything - those who have the knowledge, skills, and determination to re-establish the endangered raptors.

For over two years the Department has advised us that "We are not opposed to the use of captive reared endangered sub-species of Peregrines for falconry, provided such use does not jeopardize wild populations It is our position that until a tamper proof marker is available for identifying all captive produced raptors" (Letter to Roger Thacker from Director U.S. Fish & Wildlife Service, Aug. 12, 1976) These markers are now available.

On March 1977 a request was made through the Director that captive bred endangered raptors be allowed for falconry purposes as the markers were available. In a reply dated April 11, 1977 we were advised to file for a Captive Self Sustaining Species declaration as allowed in Federal Code/ regulation 17.7.

On June 1, 1977 the Federal Register Volume 42 in a captive self-sustaining declaration concerning several exotic cats and pheasant the following statement was made "The Service has decided not to include as a C.S.S.P. any Endangered Species that is native to the United States weaken the protection afforded to such species, since animals unlawfully captured in the wild might be falsely described as being a C.S.S.P.

So the full circle has been completed without any of the agreed on relief taking place! Support for removal of captive bred endangered raptor species from the jurisdiction of the Endangered Species Act; or allowances for their use in falconry is widespread. The following organizations have made such recommendations or motions:

The North American Falconers Association	1974
The National Wildlife Federation	1974
United Peregrine Fund	1975
North American Peregrine Foundation	1975
International Association of Fish & Wildlife Agencies	1976
Raptor Research Foundation	1976
Wilson Ornithological Society	1977

It should also be noted that in more than one Congressional hearing the Department has made public statements supporting this issue although its actions seemingly move in the opposite direction. As early as 1974 in the course of Mr. Greenwalt's confirmation hearings Senator Jackson raised the question "Could captive bred endangered species be used for falconry?" In his response Mr. Greenwalt indicated he hoped to amend the Endangered Species Act by regulation and thus exempt captive bred populations from certain prohibited Acts.

In Oversight hearings before the Senate Subcommittee on Environment May 6, 1976 the same question was raised. Mr. Parsons of the Department of Interior answered the question in the following manner: "We are working on draft falconry propagation regulations And I'm sure the issue of the treatment of endangered raptors will come up too." It never has in a positive manner! Senator Ford in addressing this question complimented Mr. Parsons for his "perfect bureaucratic answer".

At these same Hearings the impression was also given that the "hold-up" of issuance of regulations was complications in first the Endangered Species Act and then the Migratory Bird Treaty Act. (P. 25-27 Record of Oversight Hearings, Committee on Commerce) We do not believe this is accurate. The hold-up is only at the Departmental level. We are advised that such regulations are fully compatible with the intent of the Endangered Species Act and that authority to issue regulations does exist under the Migratory Bird Treaty Act.

In conclusion because we feel that the intent of Section 9 of the Endangered Species Act in regard to post Act captive bred progeny of Pre-Act parents is unclear; because the actions of the Fish & Wildlife Service in this issue have become over restrictive and have reached a degree where such actions may be detrimental to the Act itself by removing the incentives to breed endangered species; and because a group of persons are being restricted unnecessarily in an issue that will have no detrimental effect on wild populations we ask that Congress re-examine pertinent sections of the Act and either remove or make allowances for the use of captive bred endangered species for recreational purposes. We also request that at the same time Congress examine the extent of law enforcement influence and the monies devoted thereto for law enforcement purposes under the auspices of the Endangered Species Act. We encourage adequate programs of enforcement as a portion of a total picture but believe at this time that perhaps in regard to raptors too much emphasis is being placed in this direction and not enough on management practices, such as research and the actual breeding. Let us concentrate on getting the birds into the wild so there is something to protect instead of as it appears to us excessive amounts of monies being spent on projects which often are only understandable to the agents themselves with seemingly negligible results. I will be happy to expand on this subject if desired.

Once again, Mr. Chairman, I appreciate this opportunity of testifying. Suggested amendments and other exhibits pertaining to these issues are attached. Thank you.

APPENDIX I

PROPOSED AMENDMENTS TO THE ENDANGERED SPECIES ACT OF 1973

SEC. 3. For the purposes of this Act—

[(1) THE TERM "CAPTIVE, SELF-SUSTAINING POPULATION" MEANS A POPULATION OF OTHERWISE ENDANGERED OR THREATENED WILDLIFE, WHETHER EXOTIC OR NATIVE, WHICH HAS, BY MEANS OF SUCCESSFUL PROPAGATION PROGRAMS, BEEN BRED IN SUCH NUMBERS IN CAPTIVE ENVIRONMENTS THAT IT IS CAPABLE OF PERPETUATING ITSELF.]

(Renumber remaining definitions accordingly.)

* * *

SEC. 4. (a) GENERAL.—(1) The Secretary shall by regulation determine whether any species is an endangered species [,]—or— a threatened species [, OR A CAPTIVE SELF-SUSTAINING POPULATION] because of any of the following factors:

* * *

[(6) SUCCESSFUL CAPTIVE PROPAGATION IN SUFFICIENT NUMBERS.]

* * *

(b) BASIS FOR DETERMINATIONS.—(1)...

* * *

(2) In determining whether or not any species is an endangered species [,]—or— a threatened species [, OR A CAPTIVE, SELF-SUSTAINING POPULATION,] the Secretary shall take into consideration those efforts, if any, being made by any nation or any political subdivision of any nation to protect such species, whether by predator control, protection of habitat and food supply, or other conservation practices, within any area under the jurisdiction of any such nation or political subdivision, or on the high seas.

(3) Species which have been designated as requiring protection from unrestricted commerce by any foreign country, or pursuant to any international agreement, shall receive full consideration by the Secretary to determine whether each is an endangered species [,]—or— a threatened species [, OR A CAPTIVE, SELF-SUSTAINING POPULATION].

(c) LISTS.—(1) The Secretary of the Interior shall publish in the Federal Register, and from time to time he may by regulation revise, a list of all species determined by him or the Secretary of Commerce to be endangered species [.]—and a list of all species determined by him or the Secretary of Commerce to be threatened species [AND A LIST OF SPECIES DETERMINED TO CONSTITUTE A CAPTIVE, SELF-SUSTAINING POPULATION]. Each list shall refer to the species contained therein by scientific and common name or names, if any, and [., IN THE CASE OF ENDANGERED AND THREATENED SPECIES] shall specify with respect to each such species over what portion of its range it is endangered or threatened.

* * *

(d) PROTECTIVE REGULATIONS.— Whenever any species is listed as a threatened species pursuant to subsection (c) of this section, the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of such species. [WHENEVER ANY SPECIES IS LISTED AS A CAPTIVE, SELF-SUSTAINING POPULATION PURSUANT TO SUBSECTION (c) OF THIS SECTION, THE SECRETARY SHALL REQUIRE, BY REGULATION, SUCH RECORDS AND INFORMATION AS HE DEEMS NECESSARY TO VERIFY THAT THE POPULATION DESIGNATED AS SELF-SUSTAINING REMAINS SO. IN THE EVENT THAT THE CAPTIVE, SELF-SUSTAINING POPULATION IS FOUND TO BE IN DANGER OF LOSING ITS SELF-PERPETUATING CAPACITY, THE DIRECTOR MAY RETURN THE POPULATION TO THE SAME CLASSIFICATION AS THAT OF ITS WILD COUNTERPART, AND ALL THE PROVISIONS OF THIS ACT SHALL APPLY ACCORDING TO ITS RECLASSIFIED STATUS.] The Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9 (a) (1), in the case of fish or wildlife, or section 9 (a) (2), in the case of plants, with respect to endangered species; except that with respect to the taking of resident species of fish or wildlife, such regulations shall apply in any State which has entered into a cooperative agreement pursuant to section 6 (a) of this Act only to the extent that such regulations have also been adopted by such State.

(e) SIMILARITY OF APPEARANCE CASES.—...

(A)...

(B)...

(C)...

[ANY SPECIES NOT LISTED PURSUANT TO SECTION 4 OF THIS ACT SHALL BE EXEMPT FROM THE PROHIBITIONS OF REGULATIONS PROMULGATED UNDER THIS SUBSECTION IF THE SECRETARY FINDS THAT ADEQUATE DOCUMENTARY EVIDENCE, SWORN AFFIDAVITS, OR OTHER INFORMATION IS AVAILABLE TO VERIFY SPECIES IDENTIFICATION AND THE ORIGIN (OR IF BORN IN CAPTIVITY, THE PLACE WHERE BORN) OF THE WILDLIFE IN QUESTION.]

* * *

SEC. 9. (a) GENERAL.—...

* * *

(b) SPECIES HELD IN CAPTIVITY OR CONTROLLED ENVIRONMENT.— the provisions of this section shall not apply to any fish or wildlife held in captivity or in a controlled environment [OR TO THE CAPTIVE BREED PROGENY OF ANY FISH OR WILDLIFE SO HELD] on the effective date of this Act if the purposes of such holding are not contrary to the purposes of this Act;...

* * *

SEC. 10. (a) PERMITS.— The Secretary may permit, under such terms and conditions as he may prescribe, any act otherwise prohibited by Section 9 of this Act for scientific purposes [,] or to enhance the propagation or survival of the affected species [, OR FOR OTHER SPECIAL PURPOSES].

* * *

[(f) CAPTIVE, SELF-SUSTAINING POPULATIONS. —EXCEPT AS PROVIDED UNDER SECTION 4 (d), THE PROHIBITIONS OF SECTION 9 SHALL NOT APPLY WITH RESPECT TO ANY CAPTIVE, SELF-SUSTAINING POPULATION.]

SAM 7/6/77



APPENDIX II

June 16, 1977

Mr. Lynn Greenwalt
 Director
 U.S. Fish and Wildlife Service
 U.S. Department of Interior
 Washington, D.C. 20240

Dear Lynn:

Once again I take the opportunity to write on several subjects that I regard with some urgency, and which I hope you can clarify for me and in some instances provide the Service's reasons for, as I, and I know many of our members, am totally confused. These subjects follow.

(1) Captive Self-Sustaining Populations (C.S.S.P.).

The Federal Register, Wednesday, June 11, 1977 (Vol. 42, #105) carried final regulations pertaining to the C.S.S.P. standing of several species of animals. Also included in this rule-making was the statement:

"The Service has also decided not to include as C.S.S.P. any Endangered species that is native to the United States. Such treatment would seriously weaken ... falsely described as belonging to a C.S.S.P."

Surely this policy (not included in the original rule proposal) is overly restrictive and by some interpretations can be considered harmful to the purposes of the Endangered Species Act of 1973; and I, on the behalf of the North American Falconers Association, must take a strong position of objection and ask that this statement and position be reconsidered by the Service.

As you are aware, for the last year I have been working on a C.S.S.P. proposal concerning raptors and as late as April 22, 1977 in a letter from yourself you advised taking this route:

"Your request for consideration at this time is appropriate. We have recently received Federal markers for banding all captive produced raptors. As previously mentioned the marking ... concerns. The C.S.S.P. regulations proposed last May 5 . . . This will expediate action on your application." (Emphasis mine.)

Other letters dated August 12, 1976 also follow the same view:

"The Service is not opposed to the use of captive reared endangered sub-species of Peregrines... It is our position that until a permanent tamper proof marker is available... at that time the Service will be willing... ."

In a letter to you dated March 11, 1977, I officially requested a modification of the Federal falconry regulations to allow the use of captive bred endangered species for falconry purposes. Your reply on April 12, 1977 states, " It is my view that listing under the proposed Captive Self Sustaining regulations would be the more desirable approach."

It appears quite frankly that our work and correspondence over the last months on this subject may have been an exercise in futility and I view this with some apprehension. I also view this new policy as over-restrictive and damaging to the prospects of individuals raising funds, spending their own time and efforts in attempting to breed, in this instance, native sub-species of the Peregrine Falcon which is well within the overall intent of the Endangered Species Act of 1973 "to help, by any means possible, native Endangered Species."

All of us are interested and support adequate law enforcement programs. However, there is a point where these can become damaging in themselves to the overall intent of a larger program through over-restrictiveness and perhaps over-reaction. I believe we may be at that point now in regard to this policy.

Once again I would ask that immediate review be given to this policy. I would appreciate your comments on the above.

(2) Golden Eagle Management Programs.

I am aware that during May 1977 in Denver a meeting was held between the Service and other interested parties to discuss Golden Eagle Management Programs "because of the serious impact of Golden Eagle predation on certain sheep operations."

As you are aware, P.L. 92-535 specifically allows the use of Golden Eagles taken under predation permits for use as falconry birds. Section 22-24, Subpart C, Part 22 of Title 50 also speaks to this but has never been completed! In letters to the Service dated May 1973, August 1975, and October 1976, requests for the completion of this section have been made several times. However, no action has resulted.

Although it is probable that only a comparatively few numbers of Golden Eagles will be utilized under this section, I request once again that in light of the recently held meetings concerning Golden Eagle management and predation that Section 22-24, Subpart 22 of Title 50 be completed and put into effect as quickly as possible as allowed by P.L. 535.

(3) Executive Order 11987 - Published in the Federal Register, May 25, 1977 concerning exotic species.

It is our understanding that because of the Injurious Wildlife Regulations recently published (raptors not included) and because of the statements contained in Section 2(b)(c)(d) of the Executive Order that raptors are excluded from this implementation. A clarification would be helpful.

I regret, Lynn, that this letter is not in many ways written more positively. However, I truthfully believe that many issues and questions raised in this letter need to be addressed by the Service to clear misunderstandings and interpretations of intent that at this time are of concern to many individuals.

I hope to hear from you shortly.

Sincerely,

Roger Thacker
President
North American Falconers Association

cc: North American Falconers Assn.
/Board of Directors
/Technical Advisory Committee

RT:sg

sured without long-term binding agreements.

Response. The Service recognizes the importance of maintaining genetic quality in CBSP's, and of assuring that they continue to exist. However, scientific management of breeding programs involving CBSP's is currently beyond the scope of the Service. Federal regulation to the extent necessary to manage genetic quality is not practical at this time and might not be desirable at any time.

8. Comment. The care of animals should not be considered as a criterion in issuing CBSP permits. The Service should not assume responsibilities of the U.S. Department of Agriculture under the Animal Welfare Act of 1972. The Service should cooperate with the U.S. Department of Agriculture in inspecting the facilities of applicants.

Response. The Service needs to know about the care, housing, transportation and disposition of animals, as mentioned above, in order to decide if an applicant is qualified to undertake otherwise prohibited activities. The Service is clearly responsible for seeing that CBSP's are properly cared for, in that CBSP's have some relationship to Endangered species in the wild. Views expressed by the U.S. Department of Agriculture would be considered in evaluating the qualifications of permit applicants, as would the views of other persons or organizations commenting on applications published in the *Federal Register*.

9. Comment. Marking or banding of CBSP animals should be mandatory.

Response. The Service recognizes the need to identify individual animals of CBSP's, and to distinguish them from animals caught in the wild. However, such identification does not always require marking or banding if the animal has unique color patterns or other distinguishing features. Where it is appropriate, the Service will require that animals be marked.

10. Comment. The following species should be determined to be CBSP's: Bengal tiger, Siberian tiger, leopard, jaguar, Asian elephant, Bactrian camel, Darwin's rhea, Hawaiian goose, Hawaiian duck, Laysan duck, Swinhoe's pheasant, Mikado pheasant, Turquoise parakeet, and Rothschild's starling. The numbers of birds in captivity are greatly underestimated for the species of pheasants listed in the proposed rules. No species should be treated as a CBSP if it is native to the United States.

Response. The Service will continue to review the status of captive populations of Endangered species. Requests to determine CBSP status, along with supporting data, should be sent to the Director. The Service recognizes the potential hazard to wild populations which is especially great for species native to this country. Import restrictions will help protect animals of exotic species that might be taken from the wild.

11. Comment. Permits authorizing conservation exhibition of Endangered species should not be limited to surplus animals, but should include animals

being used in scientific or breeding programs. The use of captive-bred peregrine falcons in falconry should be allowed under permits for conservation exhibition.

Response. The Service recognizes that situations may arise where animals involved in a scientific or breeding program could also be used for conservation exhibition. In such cases, permits are available for the former activities and need not be sought for conservation exhibition. The falconry rules in § 17.22, Part 21 of Title 50, Code of Federal Regulations, prohibit the use of species listed as Endangered in § 17.11. Thus, even if a permit were to be issued for conservation exhibition of peregrine falcons, their use in falconry would still be prohibited.

12. Comment. The definition of euthanasia should include the condition that the animal can no longer reproduce.

Response. The Service intended the term "sterile" as used in defining euthanasia to mean that the animal is infirm due to old age. Lack of reproductive ability is only one of several factors which can be used in determining that an animal is infirm due to old age.

CONCLUSIONS

The Service has decided to revise the proposed rules by removing the white eared pheasant, *Crossoptilon crossoptilon*, from the list of CBSP's. The proposed rules stated that there were apparently few captive individuals of this species. No additional data have been presented to indicate that more than 48 individuals are in captivity, but the status of the species will be reconsidered if additional data are submitted.

The Service has also decided not to include as a CBSP any Endangered species that is native to the United States. Such treatment would seriously weaken the protection afforded to such species, since animals unlawfully captured in the wild might be falsely described as belonging to a CBSP.

Based on comments received, the Service is revising the proposed rules concerning permits for CBSP's. It is expanding the provisions of § 17.23 to cover import and export instead of using permits under § 17.32 (for Threatened wildlife) to cover such activities. Permits will become available for scientific purposes, or the enhancement of propagation or survival or economic hardship, or zoological exhibition, or educational purposes, or special purposes consistent with the purposes of the Act. The expanded provisions of § 17.33 will cover all of the otherwise prohibited activities that are normally involved in managing CBSP's.

Permits are available pursuant to § 17.33 for a single transaction, a series of transactions, or activities over a specific period of time. However, where animals are taken or exported from the United States, permits will only be available for a single transaction or a series of transactions. The purpose of this is to avoid an unrestricted drain of animals from the CBSP's. Such permits may authorize the return of the same individual animals to this country. Where other

animals are imported, whether or not they are from captive populations outside the United States, a § 17.23 (Endangered species) permit is required. This is necessary because the treatment of CBSP's as Threatened only applies to animals in the United States.

The Service has decided to retain the proposed amendments to § 17.33 that would (a) include consideration of the opinions or views of scientists or other persons or organizations having relevant expertise in the issuance criteria for permits; (b) make permits available for a single transaction, a series of transactions or activities over a specified period of time when they do not involve exportation or taking; (c) make permits available for groups of similar species; and (d) establish as permit conditions that permittees may be required to mark animals, and that transactions must be reported on forms provided by the Service.

The Service recognizes that the definition of "enhancing the survival of endangered wildlife" is also applicable to Threatened species. The definition has been modified to apply to both Endangered and Threatened species, including CBSP's. It has also been changed, in response to comments, to indicate that euthanasia may be permitted for animals that are infirm due to old age or genetic defects.

The Service intends to review and, if necessary, revise these rules in the future. Comments on them are welcome and should be sent to the Director. Petitions to determine that captive populations of certain exotic species are CBSP's are also invited, and should be accompanied by data supporting the criteria given in § 17.7.

The following rules take effect June 1, 1977. They relieve a restriction and, therefore, do not require a delayed effective date pursuant to 5 U.S.C. 553(d). Please note that application requirements for permits to engage in interstate commerce in CBSP's remain the same as in the proposed rules. As a result, applications that were submitted under the proposed rules need not be amended to meet application requirements of the final rules.

This regulation was originated by Arthur W. Lazarowitz and Richard L. Jachowick of the Federal Wildlife Permit Office.

NOTE.—The Service has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11649 and OMB Circular A-107.

Dated: May 18, 1977.

LYNN A. GREENWALT,

Director,

Fish and Wildlife Service.

Accordingly, Part 17, Subchapter B, Chapter I of Title 50, Code of Federal Regulations, is amended as follows:

1. In § 17.3, insert the following material between the end of the sentence that defines "Endangered" and the beginning of the sentence that defines "Baras":

APPENDIX III



United States Department of the Interior

FISH AND WILDLIFE SERVICE

WASHINGTON, D.C. 20240

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICEIn Reply Refer
To: FWS:MRMDr. Roger Thacker, President
North American Falconers Association
The N.W. Trek and Foundation
Eatonville, Wash. 98328

APR 12 1977

Dear Roger:

This responds to your letter of March 11 requesting that Federal falconry regulations be amended to allow the use of captive-produced endangered peregrines for falconry.

In my letter of last August 12 two possible courses of action were suggested to ease the restriction on use of captive-produced peregrines ... (1) amending the Federal Falconry Permit Regulations, or (2) listing those populations as "Threatened" under the proposed Captive, Self-Sustaining Population Regulations. It is my view that listing under the C.S.S.P. regulations would be the more desirable approach. Listing would receive greater support from the scientific community and allow for the issuance of permits to falconers within existing Federal and State regulations. This action would not preclude amending the falconry regulations to allow, for example, the possession of more than one captive-reared "Threatened" peregrine by Master Class falconers.

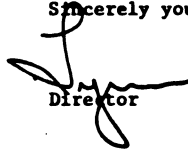
Application for listing the affected subspecies of peregrine as "Threatened" under the C.S.S.P. regulations should follow the requirements described in the fish and wildlife regulations, § 17.7 (copy enclosed). Correspondence should be addressed to: U.S. Fish and Wildlife Service, Federal Wildlife Permit Office, Washington, D.C. 20240. The review process will require 60 to 90 days.

Your request for consideration at this time is appropriate. We have recently received a supply of Federal markers for banding all captive-produced raptors. As mentioned previously, the marking of such stock will lessen a number of concerns. The C.S.S.P. regulations proposed last May 5 are now being prepared for publication in April. This will expedite action on your application. In addition, I am pleased to report that 17 States have met Federal falconry standards, and regulations in 21 other States are currently being reviewed.



I hope my views will be helpful, Roger. Please let me know if I can be of further assistance.

Sincerely yours,



Director

Enclosure

towns in Alaska for native consumption within native villages and towns in Alaska.

(c) Non-edible by-products of endangered or threatened wildlife taken or imported pursuant to paragraph (a) of this section may be sold in interstate commerce when made into authentic native articles of handicrafts and clothing.

§ 17.6 State cooperative agreements.
[Reserved]

§ 17.7 Captive, self-sustaining populations.

(a) Whenever the Director determines that a captive, self-sustaining population of otherwise endangered wildlife exists within the United States, such population may be treated as threatened and may be listed in § 17.11. Each such listing shall bear the notation "(C/P)" following the designation of status, to indicate that the reason for treating it as threatened rather than endangered was the attainment of a captive, self-sustaining population within the United States.

(b) The listing of species as threatened because they are captive, self-sustaining populations within the United States shall follow the same procedures as required in section 4(f) of the Act for the listing of endangered or threatened species, except that captive wildlife shall not be considered to be "resident" wildlife within the meaning of section 4(b) (1) of the Act.

(c) In determining whether to list a species as threatened because it is a captive, self-sustaining population, the Di-

rector shall consider the following factors:

(1) The approximate number of specimens of that species that exist in captivity in the United States;

(2) The age and sex ratios of such captive specimens;

(3) The number of persons who have successfully propagated the species in captivity;

(4) The number of generations of the species that have been successfully propagated in captivity;

(5) The likelihood that persons owning or controlling such captive specimens will cooperate in insuring the continued existence of and reproduction among such captive specimens;

(6) The number of requests to take or import wild specimens of the same species received during the 24 months immediately prior to the date consideration of the species was undertaken;

(7) The ratio of wild born versus captive born specimens of the species in captivity in the United States; and

(8) Such other factors as he deems appropriate.

(d) Permits shall be available pursuant to § 17.33 for persons who wish to engage in otherwise prohibited activities with specimens of wildlife listed as threatened under this section.

Example. Although the XY pheasant is endangered in the wild and has been determined to be an endangered species, the Director determines that there exists in the United States a captive, self-sustaining population of the pheasant which constitutes no drain on the wildlife population. After following the proper procedures, the pheasant would be listed in § 17.11 as follows:

SPECIES			RANGE		When Listed	Special Rules
Common Name	Scientific Name	Populations	Known Distribution	Portion of Range Where Endangered or Threatened		
XY pheasant	<i>Cigantus smallus</i>	N/A	Southeast Asia	Entire	E	6 N/A
Do	do	In captivity in U.S.	N/A	Entire	T(C/P)	6 N/A



March 11, 1977

Mr. Lynn Greenwalt
Director - U.S. Fish &
Wildlife Service
U.S. Dept. of Interior
Washington D.C. 20240

Dear Lynn:

It seems appropriate at this time to raise the issue of the use of captive bred endangered subspecies (Peregrine falcons) for falconry purposes. In a letter from yourself to me dated August 12, 1976 (your ref. F.W.S.; M.B.M.) on this very subject your letter states "The Service is not opposed to the use of captive-reared endangered sub-species of peregrines for falconry,.....It is our position that until a permanent, tamper proof marking system is available for identifying all captive produced raptors, such use could prompt....."

It is my understanding that the federal raptor bands are now in the hands of the Service and I would therefore respectfully request that the Service initiate (as indicated in your letter) steps to allow the use of such captive bred endangered species for falconry purposes by amending the federal falconry regulations.

I would appreciate an early response to this letter and your views on this matter

Sincerely,


Roger Thacker
President N.A.F.A.

RT/pae

cc: Board of Directors
Legal Committee

Associate Member Organization, National Wildlife Federation



United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

ADDRESS ONLY THE OFFICE
FISH AND WILDLIFE SERVICE

APPENDIX IV

In Reply Refer
To: FWS:MBM

APR 11 1976

Dr. Roger Thacker, President
North American Falconers Association
The N.W. Trek and Foundation
Eatonville, Washington 98328

Dear Roger:

This responds to your letters of March 5 and July 8, concerning the use of endangered subspecies of peregrines for falconry. I regret that an earlier response was not possible.

The Fish and Wildlife Service recognizes the major role that members of the falconry community have played in preserving the peregrine in the wild and as one of the finest raptors used in falconry. It has been largely through these efforts that the survival of the peregrine, in captivity, can be assured through use of successful captive propagation methods.

We encourage the captive propagation of raptors by qualified individuals when such activity can be shown to present no negative impact upon the wild populations. Indeed, the Service recognizes that the captive rearing of peregrines may have a number of unique salutary effects. Such endeavors not only provide "gene pools" which of themselves are worthy of preservation, but may ultimately eliminate the demand for peregrines from the wild.

The Service is not opposed to the use of captive-reared endangered subspecies of peregrines for falconry, provided that such use does not further jeopardize the wild population. It is our position that until a permanent, tamper-proof marking system is available for identifying all captive-produced raptors, such use could prompt unscrupulous persons to remove endangered species from the wild and claim them to have been captive reared. It was for this reason that the Federal Falconry Permit Regulations specifically exclude, for purposes of falconry, "any endangered species hatched in captivity after December 28, 1973."



Service biologists working with you and other interested persons have designed what we believe to be an acceptable leg band, marking device. A contract for production of this item was awarded last March. Unfortunately, the company has failed to meet our specifications for the tamper-proof requirement. Company officials are confident that this fault can be corrected. They have promised delivery of an acceptable design this week. We are giving this matter special attention.

Once the marking requirement has been satisfied, we will initiate or be amenable to a proposal to permit the use of captive-reared, endangered peregrines for falconry. Several possible measures of relief are available. In our estimation, the two most appropriate options for consideration at this time include:

1. Amendment to the Federal Falconry Permit Regulations to allow for the use of captive-reared "endangered" species.
2. Listing all captive, but otherwise endangered, populations of the peregrine or its subspecies as "threatened" under the proposed Captive, Self-Sustaining Population Regulations (50 CFR Part 17). If qualified for listing, such captive stock would be available to Master Class falconers. Additional amendment to the falconry regulations would be required to allow Master Class falconers to have more than one "threatened" peregrine in possession or to allow for their use by other class permittees.

The taking of arctic peregrines on their southward migration for use in falconry and subsequent release could significantly reduce that population's pesticide loads. In this context, falconry may well qualify under the intent of the Endangered Species Act as one measure to enhance that subspecies survival in the wild. It would be difficult to evaluate such a program owing to the limited numbers of competent individuals available to fly these falcons and the resultant scarcity of data to determine their survival and ultimate reproductive success in the wild. Nevertheless, the proposal does have merit on a logical basis and warrants further consideration. The Peregrine Recovery Teams are addressing this issue. I suggest that you discuss this matter with the Team Leaders:

Mr. Donald Fricke (Arctic Team Leader)
U.S. Fish and Wildlife Service
Clarence Rhode National Wildlife Range
Bethel, Alaska 99559

Mr. Rene Bollengier (East Coast Team Leader)
U.S. Fish and Wildlife Service
New Federal Building
55 Pleasant St.
Concord, New Hampshire 03301

Mr. Gerald Craig (Rocky Mt. & Southwest Team Leader)
Colorado Division of Wildlife
7977 Durango St.
Denver, Colorado 80221

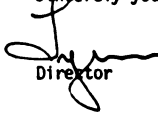
Mr. Robert Mallette (Pacific Team Leader)
Calif. Dept. of Fish and Game
1416 9th St.
Sacramento, California 95814

By copies of this letter I am alerting the Team Leaders of your interest in this subject.

I assure you that the Service is making every reasonable effort to enhance the survival of the peregrine in the wild. Falconers have played an important role in this endeavor. Without their support and expertise, the notable successes to date would not have been possible. We are also endeavoring to be responsive to the legitimate needs of the falconer and persons interested in raptor propagation. It is not always possible for us to address and resolve all issues as quickly as we would like.

Roger, I hope that this response clarifies our position on these issues. As always, we welcome your comments and suggestions for developing a sound raptor management program.

Sincerely yours,


Director



APPENDIX V

March 9, 1976

Senator Warren G. Magnuson
 Chairman, Senate Committee on Commerce
 Senate Office Building
 Washington D.C. 20510

Dear Senator Magnuson:

I am enclosing for your interest and consideration a copy of a letter I have recently written to Mr. Lynn Greenwalt, Director U.S. Fish & Wildlife Service. I am also aware that in the near future Oversight Hearings on the Endangered Species Act of 1973 will be held before your Committee and it is my hope that you will consider positively some of the thoughts enclosed in this and the enclosed letter.

Urgent clarification of that portion of the Act dealing with captive bred endangered/threatened species needs to be made so that both the regulatory agencies and the general public understand the intent of Congress when it passed the Act. In my opinion it was not the intent of Congress to close the private individual out!

In questions put to Mr. Greenwalt on September 30, 1974, by Senator Henry Jackson, Mr. Greenwalt apparently took the same position in regard to this question and in particular in regard to falconry. I quote from those questions:

Question #15

"Could captive bred endangered species be used?"

Response (Lynn Greenwalt)

"Endangered species born in captivity after December 28, 1973; date of enactment of the Endangered Species Act of 1973 cannot be used for falconry. We hope either to amend the Act or by regulation, pursuant to authority in the Act exempt captive bred populations of endangered species from certain prohibited acts."

To date no such relief has been forthcoming from Interior. Indeed in the recently published federal falconry regulations (January 1976) captive bred endangered species are specifically denied to falconers.

Associate Member Organization, National Wildlife Federation

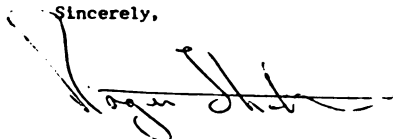
As is contained in my letter to Mr. Greenwalt it appears illogical and wrong to tell somebody that if he/she has a pair of birds in captivity prior to a given date they may be used for recreational purposes but after that date any young from that pair may not be! How on earth does the utilization of captive bred stock affect wild populations? This is especially true from a law enforcement view now that the federal falconry regulations have been issued which require all individual falconry birds to carry a marker.

In hand with my prior remarks and as laid out once again in my letter to Mr. Greenwalt it has been falconers who first and foremost have made and continue to make the remarkable advances with captive raptor breeding, possible that so many agencies are now claiming the success for. Falconers are indeed a minority group who have made it all possible.

In this issue I do not believe it was the intent of Congress to deny the legal utilization of wildlife to any person if it was not contrary to the designs of endangered wildlife. Certainly captive bred stock cannot be considered so.

As an individual and Washington resident, and as President of the North American Falconers Association I hope you will have time to consider my comments. If I can help further please do not hesitate to contact me. It is my wish to have the opportunity of talking with you further on this subject in the near future.

Sincerely,



Roger Thacker
President, N.A.F.A.

RT/nae

Enclosure

Address:

Route 1, Box 8;
Eatonville, WA 98328



March 5, 1976

Mr. Lynn Greenwalt
Director
U.S. Fish & Wildlife Service
Dept. of the Interior
Washington D.C. 20240

Dear Lynn:

I was generally pleased with, and glad that at long last the federal falconry regulations have become a fact. While in reviewing them I find them fairly acceptable, there is one portion that concerns me and quite frankly I feel should be reviewed again by the Service. I refer specifically to that section which prohibits the use in falconry of endangered species hatched and raised in captivity after December 28, 1973. Again of particular concern to me is this prohibition in regard to young reared from parents possessed before the enactment of the Endangered Species Act, 1973.

The Endangered Species Act was designed to conserve whenever practical those species faced with possible extinction. This design is emphasized in the Act by encouragement of conservation programs to be developed by both public agencies and private individuals.

Of course I am particularly concerned with the captive breeding of the Peregrine falcon (*anatum* and *tundrius*) which is of course well within the purview of the Act and which therefore should be encouraged whenever possible. With this in mind I feel the policies of the Service should encourage and support captive breeding projects whether they are managed by public agencies or private individuals.

Today captive breeding of raptors, including the Peregrine is being completed almost exclusively by falconers. Many projects are being funded by them, either in part or total and the initial if not successive breeding stock has been loaned to these projects by private individuals. In this total picture it is my feeling that the falconry fraternity has made a major commitment and contribution towards the successes enjoyed today. You may remember that up to a relatively short time ago, several of our major conservation organizations and indeed many individuals within the Service regarded raptor captive breeding as being unrealistic and regarded falconers

Associate Member Organization of National Wildlife Federation

making such attempts as perhaps "crackpots" at the best. Today look where we stand!

Falconers many years ago realized that certain wild Peregrine populations were in some trouble and that perhaps any future with the species for falconry purposes lay in captive breeding. Such breeding would also serve as a reservoir for re-introduction purposes. Now after years of fiscal expenditure and commitment to the species the Service has announced a policy closing off captive bred Peregrines to falconers.

In all our efforts to conserve wildlife the private sector has played a very large portion. That this sector has some private interests in mind should not detract from the overall picture that it has also benefitted our total nation's heritage.

By closing off the use in falconry of captive bred Peregrines the Service has perhaps taken a backward step in the conservation of the species. Quite frankly without some commitment by the Service for the private individual who is expending his/her own efforts I feel birds may be withdrawn from projects; private breeding of hybrids may commence; some funding may cease; and birds originally designed for breeding projects will be flown instead. This of course does not lend itself to the conservation of the species but may well be a course of action resulting from the Service's apparent policy of complete protection.

In hand with this as early as 1971 (Hawk and Owl legislation) several of the larger conservation organizations are on record as supporting the use of captive bred raptors by falconers and differentiating in legislation between wild and captive bred origin birds. In January 1975 at the meeting held in the Interior Building between yourselves, the National Audubon and the N.A.F.A. everyone agreed that captive bred birds should be considered separately to wild birds; and individuals of the National Audubon expressed little or no interest in the former. May I also mention that the Endangered Species Act itself in my opinion does not address itself specifically to this question, and it may be that more emphasis on the interpretation of the Act in this area, and the intent of Congress may be in order.

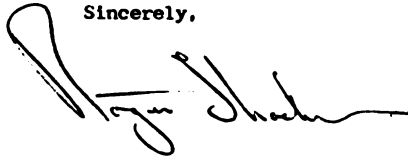
As was pointed out so ably by Dr. Tom Cade at the Peregrine II Conference there is no reason why pleasure and science cannot be combined. I am referring here to the flying of Peregrines by falconers for a year before releasing them into the wild for their northern migration. Commonly referred to as "short-stopping" to prevent the birds picking.

up pesticides in South America I feel such a program would meet the requirements of the Act which in one paragraph calls for "any and all methods", and also provide a joint program between the Service and the private individual, thus causing a more positive climate and allowing the individual some return for his/her investments. I am also for your interest enclosing part of an article on captive breeding and the contributions made by falconers which was prepaid in 1975 by members of the N.A.F.A. and the British Falconers Association. I think it is self explanatory.

Last if I may I would like to comment on the formation of the Peregrine Recovery Teams. Many individuals have commented to me on the cost and they feel wastage of valuable money that is occurring in meetings and administrative overheads of these teams. Hundreds of thousands of dollars is being spent on meetings which might otherwise be poured into active breeding projects. The same feeling is prevalent in regard to law enforcement. If we assume that the figure of zero peregrines on the east coast and twenty eyries in the western states is correct what are the vast sums of law enforcement monies allocated for the Peregrine being spent on? Would it not be far more productive to put these monies into breeding projects so we can get birds back to the wild and have something for enforcement to enforce?

May I officially request that the Service carefully review its policy statement as regards the use of captive bred endangered species for falconry purposes; and I urge you to assume a position that will allow the private individual to feel that he/she can fully participate in efforts that in effect will benefit the total nation. Your comments will be appreciated.

Sincerely,



Roger Thacker
President, N.A.F.A.

RT/pae

Enclosure

Address:

Box 8G, Route 1
Eatonville, WA 98328

TESTIMONY OF SAFARI CLUB INTERNATIONAL
 before the
 SUBCOMMITTEE ON RESOURCE PROTECTION
 SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
 July 28, 1977
 by
 Andrew M. Oldfield, International Director
 SAFARI CLUB INTERNATIONAL

Mr. Chairman and distinguished members of the Committee.
 My name is Andrew M. Oldfield.

Safari Club International is a worldwide organization composed of more than 500,000 regular, associate and affiliate members representing a cross section of the much larger national and international fraternity of hunters. We have thirty-three active chapters in the United States and Canada, and one in Europe. Safari Club International supports conservation efforts throughout the world. We are particularly proud of our Safari Club International Conservation Fund, used solely for conservation and education. We fund wildlife research projects where they are needed and other funds are not available; and we fund the American Wildlife Leadership Schools which provide young people with the information and background they will need to make decisions about conservation and environmental issues.

Safari Club International supports the objectives of the Endangered Species Act of 1973, even as it supported the acts of

1966 and 1969. The act of 1969 first called for a listing of worldwide endangered species and prohibited their importation. However, the threat of extinction had to apply to the species or subspecies throughout its range. This limitation was improved by the Endangered Species Act of 1973 which allows the Secretary to consolidate the foreign and native lists, and to subdivide the single list to show what animals, in which areas, are either endangered or threatened. It requires the Secretary to "specify with respect to (each) species over what portion of its range it is endangered or threatened." This requirement added a beneficial precision to the act.

We believe the Committee will understand our concern with the fair administration of this particular provision of the act. Our membership is primarily sportsmen who hunt throughout the world for trophy-quality game animals. We support rational wildlife management in order to perpetuate game species and their habitats. We do not wish to be party to the extinction of any species; and conversely, we do not wish to be denied the right to bring into the United States any trophy of a non-endangered species, legally taken in another country, by the pressures of groups whose persuasion is against hunting.

For example, a keen debate had developed over the worldwide status of spotted cats before passage of the 1969 act.

The American, and to some extent the European, African and Asian public was deluged with atrocity reports from nature writers, the press and the advertizing media, each reporting one another and all quoting some impeccable authority who seemed to have had more imagination than certified knowledge. This avalanche of misinformation convinced the American public that all spotted cats throughout the world were facing certain and immediate extinction.

Following passage of the act of 1969, the Fish and Wildlife Service contacted wildlife agencies in most of Latin America, Africa and Asia to obtain information on the status of presumed endangered species in those countries. Data supplied by the Department of Commerce on importation of raw fur skins indicated that importation of leopard hides for commercial purposes had almost stopped thanks to enforcement of the Lacey Act which prohibits importation of hides taken illegally in other countries. Based on these contacts, a review of the literature and various conventions; personal interviews with wildlife experts of other countries, with FAO wildlife biologists and competent scientists in the United States who had worked or studied abroad; an examination of files and published data of IUCN, and a review of commercial data the Service prepared a list of foreign endangered species which contained only three subspecies of the leopard, in keeping with Congressional instructions contained in the

legislative history of the Act:

"Finally, the committee would also stress that a given species or subspecies may be placed on the endangered list only when it is threatened with worldwide extinction; a serious reduction in numbers in a single country is not an adequate basis for placing a species or subspecies on the endangered list when that same species or subspecies is plentiful elsewhere." (Senate Calendar 519, Report No. 91-526, November 6, 1969)

The basis for the listing (or for not listing all spotted cats) was summarized in a report: "GENERAL STATUS AND PROTECTION FOR THE CATS OF OTHER COUNTRIES", by Harry A. Goodwin and Eley P. Denson; presented at the "Symposium on Status and Management of the Wild Cats of North America, 36th North American Wildlife and Natural Resources Conference, Portland, Oregon, March 9, 1971."

There was an immediate storm of protest, largely articulated by Drs. Norman Myers, an ecologist from Kenya then in the U.S. and Randall Eaton, an ethologist, who believed Interior should have prohibited all commercial importation of leopards. Neither gentleman had made a survey of the status of the cats or apparently realized that listing the species banned all importation without exception for legally taken trophies.

In 1971 the service drafted a report (Status Report on Cats of the World, 1971, SSR Wildlife 157) frankly attributing much of the data to Myers, in which it concluded leopards were in danger of extinction and should be placed on the list. Not only was the earlier survey not acknowledged, a draft of the report contended the reasons for listing only the three

subspecies were unknown! On March 30, 1972 the Bureau designated leopards as endangered and prohibited importation of their skins. One of our affiliates, the Mzuri Safari Club, under the impression that only commercial importations would be affected, commended the Department of the Interior for its action.

This action did not go unquestioned for long. We understand, within a short period some 1500 letters, pro and con, were received. Letters from the Chief Game Warden of Kenya, the Director of National Parks and Wildlife Management of Rhodesia, a Tanzanian game research officer, the Director of the Botswana Department of Wildlife and National Parks and the Chief of Veterinary Services (responsible for wildlife management) of Mozambique all attesting that leopards were not endangered and could be hunted legally were submitted to the Interior that summer. Apparently none of them had any prior knowledge of the proposed action.

American sportsmen who hunted in Africa and Asia and who were knowledgeable about wildlife conditions there were unbelieving. Wildlife experts of several countries protested the action to Interior -- attesting that leopards were not endangered in their countries and could be legally hunted and exported. Interior replied to them and to American sportsmen with letters that urged support for a new bill that would allow more flexibility by establishing a threatened category, as well as the existing endangered category. "Selective regulation could be applied," they said, and "certain types of importation

could be barred while others were allowed;"..."In the case of an animal which produces a harvestable surplus in countries where an effective wildlife management program exists, it could be possible to allow the importation of lawfully taken sport trophies while banning imports for commercial products." Congressman Dingell's testimony in support of the bill was reassuring -- (Cong. Rec., Sept. 18, 1973, pg. H 8019) "...it is a bill which has been carefully drafted to encourage State and foreign governments to develop healthy stocks of animals occurring naturally within their borders...I have been informed by the Department of the Interior that they will carefully review the status of animal stocks in foreign countries and that where non-endangered trophy animals are being managed in such a way as to assure their continued and healthy existence, no barriers will be placed upon the continued harvesting of these animals by the government." The argument for flexibility was persuasive and Safari Club International supported passage of the bill which ultimately became the Endangered Species Act of 1973.

Mr. Chairman, these promises were not kept. The American sportsmen were misled and the United States government stands in ridicule before the world's wildlife biologists. Several field studies since 1972 have demonstrated that the leopard was not then and is not now threatened with extinction throughout its range. The grave threat it had faced in many regions

of the world in the mid- and late sixties from illegal trapping for the fur industry had been relieved, as far as the United States was concerned, by enforcement of the Lacey Act. You heard testimony last week that it was enforcement of the Lacey Act that also turned the tide in favor of the American alligator.

During 1973, Dr. Myers undertook a survey of African leopards under the auspices of IUCN. He concluded that leopards were not in danger of extinction and that regulated commercial exploitation, including harvest by hunters, would provide a needed economic incentive for their protection and retention in African fauna. He published his conclusions in a popular article in 1974 (IUCN publication of the entire report was in 1976), yet in 1975 Interior officials denied any knowledge of it. Assistant Secretary Bohlen, tired of the issue, wrote bluntly that there were higher priorities than reviewing the status of species already covered by the Act.

Nevertheless, Interior eventually (May 7, 1975) agreed that evidence accumulated since 1972 suggested that the leopard was not endangered throughout its entire range and announced it would be the subject of a survey. There matters sat without action.

The Safari Club International sponsored an international game symposium in Nairobi in January 1976. Representatives of the Governments of Kenya, Zambia, Uganda and Ethiopia took part as well as the World Wildlife Fund of Kenya and the East African

Wildlife Society and signed a resolution stating, in part, that "A legal hunting season should be prima facie evidence that a country considers a species not endangered, and...sportsmen should be allowed to import any wildlife trophies...taken in accordance with the hunting laws of the country of origin and exported with all appropriate licenses and permits. All seem bewildered by Interior's stand. They have sought assistance in controlling poaching for the fur trade, not prohibition on the importation of lawfully taken trophies.

In an effort to assist Interior and assure themselves of the accuracy of their position, the Club commissioned Dr. Eaton to undertake still another survey of African leopard populations in 1976. In the foreword of his 164 page report, Dr. Eaton acknowledged that he had been misled earlier. Like Dr. Myers, he concluded that leopards were not endangered and that regulated sport harvest could enhance their survival possibilities.

Finally, Interior commissioned a study this year by Drs. Wendell Swank and James Teer. We have not seen a copy of their final report, but have been informed that after visiting "11 countries and talking with 48 different people whom we thought were knowledgeable about the status of the leopard" they found the same thing that had been reported by the authors of the original survey in 1970.

The leopard is included on Appendix I of the Convention

on International Trade in Endangered Species. Interior maintains this Convention, intended to control commercial trade, flatly prohibited the importation of hunting trophies of Appendix I species. I, as President of SCI, attended the First Meeting of the Conference of the Parties to the Convention at Geneva, Switzerland, November 2-6, 1976. Representatives of other countries advised me that the United States is alone in this interpretation. Delegates from other countries, being unconcerned about the issue, dropped a clarifying resolution drafted by the legislative subcommittee when Deputy Asst. Sect. Bohlen objected. We are thus faced with a Catch-22 situation. Interior has maintained it would be inappropriate to remove leopards from its endangered species list so long as they are on Appendix I of the Convention. Other nations want them on Appendix I to control the fur trade, and seem incredulous that the U.S. feels this bars importation of hunting trophies. (This position is inconsistent. There are many species on the Appendix which Interior has investigated and has not added to its endangered list -- a reasonable indication that they do not belong on the Appendix.) Conversely, so long as the U.S. has the species on the endangered list, it seems unlikely that it will be removed from the Appendix.

It would appear that the best we can hope for is that Interior will reclassify most leopard populations as threatened. If matters go as they have in the past with alligators and is

proposed for wolves, this will be only a semantic change, and Interior will still regulate importations as if the animals were endangered.

The leopard should not have been listed under the provisions of the 1969 act; and under the provisions of the 1973 act, the listing should specify over what portion of its range it is endangered or threatened. Safari Club International has made every reasonable effort possible to provide information to correct the listing, and has sought relief through formal petition -- but as yet to no avail.

Another listing that concerns us is the recent placement of the lechwe on the endangered species list. Kobus leche, Gray, 1850, appeared on the June 14, 1976 listing. Three races are recognized and neither of the three races are listed as endangered in the most authoritative source available -- the IUCN Red Data Book, Vol. I, Mammals. Though admittedly reduced in number from early abundance, it cannot be considered in danger of extinction. Population estimates in 1971 totaled more than 100,000 individuals spread from northern South West Africa and Botswana, the Caprivi Strip, southeastern Angola and Zambia into southern Zaire -- with many large herds contained in National Parks or other protected areas. The lechwe may be legally taken in Africa but Interior refuses to permit their importation and has not responded

to our petition of May 18 for a review of their status. Presumably, Interior must consider South African wildlife authorities are not conducting a satisfactory management program.

As a final example, the bontebok of South Africa, Dama-liscus dorcas dorcas, Pallas, 1766, a localized subspecies related to the more widely distributed and still abundant blesbok, was added to the endangered list on June 14, 1976. It was declared out of danger by the IUCN years ago and rates a green sheet for recovery in the Red Data Book. It is given complete protection in one national park (named in its honor) and in two nature reserves. South African game regulations permit trophy animals to be taken from managed herds on private ranches, but they may not be imported into the United States.

Interior is faced with a tremendous task in implementing a simple sounding but very complicated law. To date, particularly with respect to foreign species, we have seen little evidence that they are up to the task. Errors of nomenclature and range of listed species, which could be checked by consulting any publication dealing with African wildlife, and the apparent unwillingness to correct them, are so basic and elementary as to suggest incompetence rather than carelessness and overwork. These errors confuse the public, cast doubt upon the program and make enforcement unnecessarily difficult.

The Mongolian beaver, Mexican bobcat, and the Chinese and Italian races of brown bear are listed simply as "beaver,

bobcat, and brown bear (FR 41 (208) 4718). Since these names can be applied to species found throughout the northern hemisphere it is small wonder the public is confused.

In another case of blatant confusion, Interior lists Cephalophus monticola, the blue duiker, simply as "duiker". It is probably immaterial that we have been able to discover no basis in any of the literature or from our personal experiences in Africa to believe this small antelope which ranges from Guinea and the Ivory Coast to the Cape is particularly sought out or scarce, much less endangered by trade. What is particularly disturbing is the use of the name "duiker", alone, for this animal. For the benefit of Committee members who may not be familiar with African wildlife, the term "duiker" applies to two different genera, containing at least 14 species occurring all across Africa from just below the Sahara to the Cape of Good Hope.

Proliferation of names and errors on the endangered species list and on the Appendices to the Convention complicates enforcement. We sympathize with the natural reaction and frustration of the enforcement agent who would prefer an outright ban to the problems of dealing with individual species. This frustration was evidenced in the Services rationale ^{listing} for three species of sea turtle as threatened under the similarity of appearance provisions of the 1973 Act (FR 41 (117) 24379).

"Persons who violate the Act's prohibitions may be prosecuted civilly or criminally...The Act's prohibitions and their attendant penalties deter persons from engaging in activities to the (already) listed sea turtles. However, this deterrence is greatly weakened when enforcement agents terminate investigations without prosecution in the belief that the items involved are from unlisted rather than listed species."

IN OTHER WORDS, you can't prosecute innocent people, therefore the law has no deterrent value. Solution: change the law so you can prosecute them. A similar philosophy and disregard for successful foreign management efforts was evidenced in recent proposals to list several crocodilian species under the similarity of appearance provisions. Instances of mislabeling cited to support the need for this action took place prior to 1971, and the chief foreign advocate cited in support stated his objective as being to stop commercial use of hides before it began.

But the burden of this frustration falls upon the enforcement agent and legitimate importer who finds himself caught by an effort to protect a species which is neither endangered nor likely to be imported into the United States or another country. Who, for instance, is likely to trade in whooping cranes? (And yet they are on Appendix I of the Convention -- a criteria for which is that the species are or may be subject to international trade.) Do not U.S. and Canadian laws already give the species as much protection as is physically feasible without invoking the assistance of other countries? Do we need to burden their customs agents with the necessity of being able to recognize

this species? This may seem academic to most of us, but to someone from another country, unfamiliar with our wildlife, it could seem like a real problem. Faced with the belief that someone might try to slip a whooping crane by him a foreign customs agent could easily opt for the simpler solution of a ban on all ⁴traffic in cranes.

The parties to the Convention recognized this was a serious problem some time ago. We were hopeful Interior would take the lead in clarifying the situation. Unfortunately, these hopes were dashed when we recently received the list of changes in the appendices the United States is proposing for the next meeting. It proposes to move four species of monkeys, two fish and 8 plants from Appendix II to Appendix I indicating they require greater protection. Nothing more. Included was the Colorado River squawfish, a species endemic to the Colorado River system which is endangered by habitat destruction caused by reservoir construction and possibly competition with introduced species. It is listed as endangered, and its export is prohibited. We have been able to locate no fisheries biologists who are aware of any local, let alone international, demand for the species.

We listened as Assistant Secretary of the Interior Robert L. Herbst testified before you on July 20, 1977 that the Endangered Species Act is working well. We are inclined to agree that in many respects it functions as the Congress

intended it should. We are pleased with Asst. Sect. Herbst's fresh attitude and interpretation of this act and are looking for considerable improvement under his administration. Specifically, it would seem reasonable to expect honest errors in the listings to be corrected. No one is infallible. It would also appear that the issuance of valid hunting permits, even on a limited basis, should be considered prima facie evidence that the issuing country does not consider that animal endangered in that part of its range.

Mr. Chairman, I thank you for the opportunity to give this testimony.

michael e. strother & associates

700 SEVENTH STREET, S.W. SUITE 613 WASHINGTON, D.C. 20024 (202) 488-0904

August 4, 1977

Ms. Kathy Korpon
Subcommittee on Resource Protection
DSOB 4204
U. S. Senate
Washington, D.C. 20510

Dear Ms. Korpon:

Enclosed is some material for inclusion in the hearing record of the Oversight Hearings on Endangered Species.

These enclosures are in reference to testimony presented by Mr. Andy Oldfield, representing the Safari Club International. His statement was given on July 28, 1977. I believe, during the hearing, Mr. Oldfield and Senator Wallop had a discussion concerning these materials. It was arranged then that they should be forwarded for inclusion in the hearing record to become part of Mr. Oldfield's statement and presentation.

Thank you for your help in setting up Mr. Oldfield's appearance before the committee. If there are any questions concerning this material, please feel free to give me a call.

Sincerely,


Michael E. Strother

Encl.

Department of Fishery and Wildlife Biology

Colorado State University
Fort Collins, Colorado
80523

MEMO

28 July 1977

SUBJECT: The White Rhino in Republic of South Africa

FROM: Eugene Decker, Associate Professor, Wildlife Biology *E. Decker*

During July 1977 I had the opportunity to visit personnel of the Natal Parks Board at their headquarters in Pietermaritzburg and in the field. On previous visits in 1972 and 1973 I visited the white rhino management areas in the Umfolozi and Hluhluwe Game Reserves. From these experiences I am able to report the following:

- A. White rhino populations continue to expand and have exceeded the carrying capacities of the two major game reserves (Umfolozi and Hluhluwe). Excess animals removed from these reserves during the recent past have been used to reestablish populations in various game reserves and parks throughout Africa. Additional animals have been sold to zoos and wildlife "parks" throughout the world.

Surplus animals have also been purchased by private landowners to develop small herds on their game ranches and reserves.

- B. The population of white rhino in the Umfolozi-Hluhluwe reserves is being maintained at about 1300 animals, the carrying capacity determined by Natal Parks Board ecologists/managers. To keep the population at this level, over 2000 were removed by live capture between 1961-1976; about 1000 were sold between 1972-1974. The removal quota for 1977 is just 24 animals which reflects good range conditions due to several years with ample moisture.
- C. The white rhino is legally designated as "Protected Game" in Natal. This designation allows the Natal Parks Board to issue permits to private land owners for hunters of their choice to harvest an allocated number of animals. Under this situation the white rhino can be legally hunted and trophy material exported.
- D. The Natal Parks Board encourages management of the white rhino, and other wildlife on private lands. The major incentive to land owners is the legal sale of surplus trophy animals (usually old males) to foreign hunters.
- E. The restriction on the import of legal white rhino trophies by American hunters is unwarranted. The restriction also removes a major incentive for white rhino conservation by private land owners as American hunters have provided the major market for their surplus animals. If the rhinos have little or no economic value, the landowners will have little interest in their management on private lands.
- F. The Natal Parks Board is one of the best wildlife conservation agencies in Africa. Their professional staff of ecologists and managers is fully competent to administer their wildlife resources. We should respect and encourage their efforts.



Department of Fishery and Wildlife Biology

Colorado State University
Fort Collins, Colorado
80523

MEMO

TO: Andy Uldfield and Seymour Levy ✓ DATE: July 25, 1977
FROM: Eugene Decker, Associate Professor, Wildlife Biology *Ede*
SUBJECT: African Wildlife Trophy Ban

My recent trip to the South African Wildlife Management Association meeting in Pretoria (5-7 July) and discussions with the Natal Parks Board's personnel in Pietermaritzburg produced good sources of information related to species on the U.S.A. game trophy ban list. In addition to data on the white rhino and lechwe in the attached memos, I have requested that high administrators in Cape of Good Hope province and South West Africa wildlife agencies send me statements on the status, legal hunting, and export of the bontebok and mountain zebra. (The Cape agency recently requested legal change of status for the bontebok.) I shall send them a reminder soon if I don't hear from them.

Some agency personnel in South Africa are also disturbed about the U.S.A. ban on some of the species. The copy of a letter by the Natal Parks Board to one of their professional hunters is enclosed which states their position clearly.

Also of interest during the trip were the increasing economic importance of game utilization on private livestock ranches and the progressive attitude of the Kwazulu homeland leaders toward wildlife conservation as Kwazulu heads for semi-independence in the near future. I feel we should support their effort if possible. I would be pleased to report further on these items when next we meet.

ED:jd

Encs.



Department of Fishery and Wildlife Biology

Colorado State University
Fort Collins, Colorado
80523

MEMO

28 July 1977

SUBJECT: Status of Lechwe in Southern Africa

FROM: Eugene Decker, Associate Professor, Wildlife Biology *E. Decker*

The following figures were supplied by Douglas Williams who was associated with recent lechwe studies in Botswana and Zambia related to his duties with the University of Natal:

Population estimates based on 1976 aerial surveys:

Red Lechwe (Kobus leche leche)

Okavango Delta (Botswana)	30-40,000
Chobe River Areas (Botswana)	10-15,000
Busanga Swamp (Zambia)	3,000
Okavango areas (Angola)	(not flown--estimate several thousand)

Kafue Flats Lechwe (Kobus leche kafuensis)

Kafue flats (Zambia)	90-100,000
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Black Lechwe (Kobus leche smithemani)

Bangwenlu Basin (Zambia)	20,000
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Grundsell and Bell of the Serengeti Institute report an estimated 30,000 black lechwe in the Bangwenlu Basin of Zambia for 1975. They consider the black lechwe "... showing good signs of recovery and may again become a major exploitable resource." The above was published in the Symposium on the Okavango Delta, Sept. 2, 1976. (The Botswana Society)

From the above figures, it is evident that none of the lechwe races are endangered. The red and Kafue lechwe are legal game in Botswana and Zambia and recreational hunting is in no way a factor to their survival. To restrict the importation of legal lechwe trophies by American hunters is unjust and a direct insult to the wildlife conservation agencies in Botswana and Zambia.

ED:jd

REPUBLIEK VAN SUID-AFRIKA



REPUBLIC OF SOUTH AFRICA

DEPARTEMENT VAN BEPLANNING EN DIE OMGEWING
DEPARTMENT OF PLANNING AND THE ENVIRONMENT

Mr Seymour H Levy
Vice President
Safari Club International
4615 N Camino Meustro
Tucson
ARIZONA 85705
USA

AFRICAN EAGLE LIFE SENTRUM/CENTRE
HOEK VAN VERMEULEN EN ANDRIESSTRAAT
COR. OF VERMEULEN AND ANDRIES STREETS
PRIVAATSAK/PRIVATE BAG X213
PRETORIA
0001

Verw./Ref. No. 27/22/3/1
Tel. Adres/Address: WEFLAN
Navraag/Enquiries: H. J. Grové
Tel. 41-1211

Dear Sir

21 -7- 1977

I refer to your letter SHL:hml dated 13 May 1977. The views held by the South African Nature Conservation Authorities on the questions raised in your letter, are seriatim as follows:

1. The Bontebok is considered rare but no longer endangered. Up to 1000 animals are found in at least five national parks and nature reserves and on many more farms. In all cases the populations are increasing and on some farms culling operations are necessary. Culling operations consist of the killing of surplus rams only.
2. The internal legislation of the Cape Province is strict enough to control all trade in Bontebok effectively. In this connection it should be noted that the status of the Bontebok improved from endangered to rare mainly in the period before the coming into operation of the Convention, ie as a result of the protection afforded it under internal legislation.
3. A reclassification of Bontebok from Appendix I to Appendix II is indicated, and in terms of the Convention an export permit would still be required.
4. The Department of Nature and Environmental Conservation of the Cape Province, the only province in South Africa in which the Bontebok occurs, would be willing to issue export permits for trophies of Appendix II species which have been taken legally.
5. The abovementioned Department would not allow the import or export of trophies of Appendix I species, whether or not such trophies have been legally taken.

Yours faithfully


for SECRETARY FOR PLANNING
AND THE ENVIRONMENT

AIR MAIL - SPECIAL DELIVERY
RETURN RECEIPT REQUESTED

cc: Mr. Andy Oldfield
Mr. C. J. McElroy
Mr. Carroll L. Mann
Mr. Michael Strother
Mr. Elay F. Denson

XX
XXXXXXX XXXXXXXXXXXX

May 13, 1977

Please Reply To: 4615 N. Camino Huasteca
Tucson, Arizona 85705

The Secretary
Department of Planning and The Environment
Private Bag X 213
Pretoria, 0001
Republic of South Africa

Dear Sir:

You are undoubtedly aware that a Special Working Session of The Convention On The International Trade In Endangered Species of Wild Fauna and Flora is to be held in Geneva, Switzerland next October. One of the objectives of this Special Working Session is the review of the Convention Appendices for accuracy.

The Bontebok (*Dama licus dorcas dorcas*) is listed on Appendix I of the Treaty. To qualify for Appendix I, a species "must be currently threatened with extinction and is or may be affected by international trade".

In order to be able to advise the United States' official representatives to the Special Working Session on the validity for the listing of the Bontebok on Appendix I, I would appreciate your kind attention to the following questions:

1. Does your Country consider the Bontebok as currently threatened with extinction?
2. Does your Country believe the Bontebok is affected by international trade?
3. Does your Country feel a permit is needed under the provisions of the Convention for Bontebok trophies taken on private farms?
4. If your Country feels a permit is required under the Convention provisions, do you issue such permits?
5. Does your Country believe that provisions of the Convention preclude the export and import of legally taken trophies on Appendix I?

Your answers to the above questions will better qualify us to make competent recommendations regarding Amendments to the Appendices of the Convention. Thank you very much for your consideration.

Very truly yours,

SAFARI CLUB INTERNATIONAL

Seymour M. Levy, Vice-President
National Legislative Affairs

SEL:hml

TUCSON DAILY CITIZEN Friday, August 6, 1976

Mexican leader raps U.S. law

The U.S. Endangered Species Act, as it applies to American citizens who legally hunt in another country, is "arbitrary," according to Mexico's director of wildlife.

Mario Luis Cossio, director of the Departamento de Fauna Silvestre of Mexico, said he is critical of portions of the U.S. Endangered Species Act because, in effect, the United States is telling Mexico that it does not know how to manage its native wildlife.

The U.S. law forbids American hunters from bringing back any portion of an animal the U.S. Congress considers endangered, even though the animal may be abundant in another country and may have been legally taken in that country.

"Every country has the right to manage its own wildlife, even if it is managing it improperly, which Mexico isn't," Cossio said.

He warned that Mexico could open year-around seasons on such species as the whooping crane or the masked bobwhite quail, if U.S. animal protectionists persist in forcing their wishes upon his country.

Cossio was in Tucson yesterday to accept two radio-equipped four-wheel drive vehicles given to his agency by Safari Club International. The two vehicles were purchased from Tucson's Precision Toyota and will be used to combat desert bighorn sheep-poaching on the Baja California peninsula.

The vehicles were driven to Baja today by Mexicans and Safari Club officials.

Cossio, 48, said Mexico has made great strides in educating its people on the value of wildlife during the three years he has headed the federal wildlife department. With the assistance of professional wildlife biologists from Mexico and the United States, along with hunting groups such as the Safari Club, his department is attempting to restore Mexico's native animals, he said.

Wildlife programs under way in his country include construction of waterfowl resting sites, the introduction of elk to Chihuahua and studies to determine the status of Mexico gray-bear and antelope.

"Before we introduce more 'exotics' such as elk, we first have to re-establish the native animals," he said.

One way to accomplish that goal is to make wildlife a business. Hunting permits for



Mario Luis Cossio

"Endangered Species Act interferes"

bighorn sheep, for example, cost U.S. hunters \$4,700 each. The money is used to conduct surveys and hire biologists, improve habitat and enforce the federal game laws.

Cossio warns that Mexico's apparent lack of enforcement of its fish and game laws is a thing of the past.

"Every hunter no matter what country he is from must be respectful of game laws," Cossio said. "We intend to enforce our laws to insure that respect."

To critics of Mexico's liberal bag limits that allow hunters to possess up to 25 ducks, Cossio pointed out that the total bag of waterfowl during the four-month Mexican hunting season does not approach a one-day kill of ducks in the United States.

"We feed those birds six months of the year without a profit," Cossio said.

BILL QUIMBY

(Copy of Letter from Natal Parks, Game and Fish Preservation Board ,
P.O. Box 662 , Pietermaritzburg , 3200 Natal , Republic of South Africa)

Res. 40

8th June 1977.

Mr. C.M. Vermaak,
Private Bag 162,
WABANK.
2920

Dear Sir,

STATUS OF WHITE RHINOCEROS IN NATAL.

In reply to your letter of 17 May 1977, a statement of the status of the southern white rhinoceros (Correatotherium sinum sinum) in the province of Natal, South Africa, is provided herewith.

PAST STATUS

The Umfolozi-Mlulhuwe-Corridor Complex has been regarded traditionally as the heart of the white rhino country in Southern Africa. Umfolozi and Mlulhuwe Game Reserves were proclaimed as such in 1897. Although white rhino were widely distributed in Southern Africa in former times, and although numbers and distribution decreased dramatically during the pioneering era of the nineteenth century, a healthy population has been maintained in the Complex. Indeed, so successful was the protection of the species, that control had to be instituted to save this cherished nucleus from self destruction arising from overstocking. Accordingly, 'operation white rhino' was instituted in 1962, and excess numbers were caught alive and transported to other reserves and private land throughout Southern Africa, and to zoos overseas.

In Table 1 appended, the numerical status of white rhinoceros since 1932 is indicated as accurately as records permit.

LEGAL STATUS

As a result of the improved status of the white rhino in Natal, in 1972 the species was transferred from the list of Specially Protected Game to the list of Protected Game. In Natal, a Specially Protected animal enjoys the highest and the strictest legal protection. Reclassification as Protected Game meant that the Natal Parks Board, the authority responsible for the conservation of indigenous flora and fauna in Natal, considered the species numerous enough to permit hunting.

Under the present system, a Protected Game animal may be hunted only if a permit is issued by the Natal Parks Board to the landowner on which the hunting is to take place. Export of any game or game products or trophies is also controlled by the Natal Parks Board and permits are issued only where the hunting of the game has been legal. Because of its sheer size, and because of its conspicuousness a white rhino is among the least likely of the Protected Game species to be hunted illegally.

PRESENT AND FUTURE STATUS

status

In Table 2 appended, the approximate numerical of white rhino in Natal today is indicated. In the resorts and reserves controlled by the Natal Parks Board, the future of the white rhino is secure. Surplus individuals continue to be removed to prevent overstocking and veld damage. As far as is possible the offtake will always be in the form of live capture. Private landowners have taken an interest in establishing breeding nuclei in their land, and also in acquiring surplus, aged specimens which are unsuitable for translocating any great distance or for establishing breeding nuclei. The motivation here is largely financial and attributable to the fees which wealthy trophy hunters are prepared to pay. Should this financial incentive be removed, there will be little reason for landowners to maintain breeding stocks of white rhino, and the status of the species on private land would be expected to deteriorate as a result.

The Natal Parks Board therefore views with concern the news that, despite the provisions of the "Convention on International Trade in Endangered Species", approved exports of white rhino trophies from Natal are being blocked by a bar on the issue of import permits by some signatories to the convention. However well-intended such a bar is, it is felt that the signatories are acting unilaterally and certainly to the detriment of the status of white rhino in Natal.

This Board can give the assurance that wherever it grants authority for the export of a trophy, that the hunting of that rhino, from which the trophy was derived, has been legal and without detriment to the province-wide status of the species.

Yours faithfully,

W. J. M. M. M.

PLEASE NOTE

TABLE 1. Status of white rhinoceros in Umfolozi-Mlululuwa-Corridor Complex between 1932 and 1972.

YEAR	NUMBER OF RHINO PRESENT	NUMBER OF RHINO, FOR CONTROL OF STOCKING LANDS AND TO STOCK OTHER LAND.
1932	234	
1936	241	
1953	465	
1959	604	
1960	650	
1962	877.....)	
1964	570*.....)	
1965	912.....)	597
1967	1007.....)	
1968	1020.....)	
1970	1771**	180
1971	2002	151
1972	1748	370
1973	1551	266
1974	1341.....)	
1976	1269.....)	385

* Count conducted under adverse weather conditions.

** First serial census by helicopter.

TABLE 2. Present status of white rhinoceros in Natal.

AREA	NUMBER
Resorts, and game and nature reserves under control of Natal Parks Board	1333
Private land	68

Statement of
 JULIAN BRZOZOWSKI
 Orr, Minnesota
 on behalf of the
 AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION
 NATIONAL LIVESTOCK FEEDERS' ASSOCIATION
 and the
 PUBLIC LANDS COUNCIL
 before the
 SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
 RESOURCE PROTECTION SUBCOMMITTEE
 ENDANGERED SPECIES ACT OVERSIGHT HEARING
 Thursday, July 22, 1977
 Washington, D.C.

American National Cattlemen's Assn.
 425 13th Street, N.W.
 Suite 1020
 Washington, D.C. 20004
 (202) 347-0228

National Livestock Feeders Assn.
 309 Livestock Exchange Bldg.
 Omaha, Nebraska 68107
 (402) 733-9464

Public Lands Council
 425 13th Street, N.W.
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 Washington, D.C.
 (202) 347-5355

Mr. Chairman, members of the Subcommittee — my name is Julian Brzoznowski. I am a cattle rancher in Northern Minnesota and am here today to present testimony on the Endangered Species Act on behalf of the American National Cattlemen's Association, the National Livestock Feeders Association, and the Public Lands Council. These three organizations represent a combined constituency of both private land owners and public land grazing permittees who are equally affected and alarmed by the current Endangered Species Act implementation.

I would like to begin by summarizing some of the inequities we see in the Act and then I will offer the story of my own personal experiences with the Endangered Species Act's effects on my ranching operation. Finally, I wish to offer recommendations for amendments to the Act.

The numerous inequities in the Act and federal activities in implementation of the Act have created considerable alarm amongst the combined constituencies which I am here representing today. These inconsistencies which conflict with our national policies have apparently concerned you also.

In philosophy and theory, protection of certain plant and animal species whose populations are diminishing significantly due to man's activities on and in proximity to a specie's habitat is an admirable goal — and is embodied in the Endangered Species Act. However, the Act was conceived in an atmosphere of urgency and high emotions.. Legislators, agencies and the people of this nation are now coming to grips with the actual impact of the Act on man. There is no need for me to go into detail on the various illustration of negative impacts of the Act on our national economy and growth. Newspapers and the media have documented these instances in both their news and editorial presentations. I wish to briefly present to

their property. This is not a radical interpretation of Section 7. I know, I have had personal experience with its application.

My Dad raised cattle in Northern Minnesota for more tha 50 years and I have lived there all my life. I purchased the farm from my Dad in 1961 and have continued raising beef cattle as my staple crop since that date. Prior to passage of the Act in 1973, and the listing of the Eastern Timber Wolf as endangered, my cattle losses to wolf predation were nil. During this time trappers were allowed to catch wolves for their hides and ocassionally the state would offer bounties under a state progra. In 1973 the wolf in Minnesota was neither endangered of threatened, they were managed and controlled to a point where man and the wolves could live almost peaceably together.

However, in 1974 I lost three calves to Timber Wolves. In 1975 I lost seven calves to wolves, and in 1976 I lost six cows, some yearlings and some calves for a total of 10 head lost that year. So far this year, I have lost two calves to wolves. These calf and cattle kills have been checked by local citizens, trappers, game wardens, Federal trappers and myself. We all agree and can prove they were wolf kills.

In 1975, I asked for help from the Federal government to get some trappers to catch some of the wolves that were doing me damage. The Federal government told me they didn't have anyone to handle this, so I has to sit back and watch the wolves eat my livelihood on my 900 acres, thinking about those losses and providing a living for my wife and three children. I was told plainly that if I harmed any wolves protecting ,y property I would be subject to one year in jail or \$20,000 in fines, or both. So, I sat still. Then in may 1976, I started getting more losses to wolves but this time was told that the Fish & Wildlife Service had initiated a trapping program

to control the wolves. They sent me a trapper to catch some wolves. The trapper told me he was supposed to catch four or five wolves around my place. In two weeks, they caught four wolves, then pulled the trapper out and said that one wolf that was left would do me no harm.

The following week I lost six more cattle and could not get another trapper because the Service said they didn't have personnel to handle my case because they were having to help other area farmers with the same problem. I called my Congressman, Rep. Jim Oberstar. He called the Fish & Wildlife Service and they responded by getting me a cowboy trapper out of Texas. Well, this man seemed to know what he was doing. He caught 20 wolves in 17 days in or near my pasture. But then the Service pulled him out because he was catching too many wolves they said. But my losses continued, so I requested another trapper and about two weeks later he came and caught seven more wolves. This summer they sent a trapper to take five more wolves as of June 26, 1977.

The first 30 wolves caught were released about 20 miles away from my farm in the Superior National Forest but then the Forest Service stopped them from releasing any more there because the wolves had eaten most of the deer out of that forest and were threatening the remainder of the herd. So, now all the problem wolves that are live-trapped in Minnesota are being released about 25 miles from my farm because there's no where else they are allowed to release them, and as a citizen I'm not allowed to do anything about that except sit back and take the losses like the Fish & Wildlife Service says I ought to.

Do you think it's right and expected of me because of the Endangered Species Act that I ought to give up my livelihood or accept losses without compensation? I sure don't. Mainly, I think the Act ought to be changed.

The Act ought to be changed to protect man from the animals as much as they are protected from us. It's awful that I have to feel the way I do about wolves but I suspect you might feel the same way if you had experienced the kind of harrassment I have from them.

There aren't any provisions in the Act to require evaluation of the costs of a preservation program and the economic consequences to the people who are directly and indirectly affected like I am. And I have "no protection from harrassment" from listed species. I'm not allowed to protect my own property. The Act has only one goal and recognizes only one national goal. Its purpose is creating havoc for many in this country.

On behalf of the American National Cattlemen's Association, the National Livestock Feeders Association and the Public Lands Council, I would like to offer the following recommendations for changes in the Act:

- (1) Section 7 of the Act must be amended to eliminate the potential authority to harrass private property owners and deny them personal property property protection rights.

Further, Section 5 Land Acquisition must be amended to eliminate authority for the "taking" of private lands for preservation of listed species unless with the expressed consent of the landowner.

- (2) The Act should be amended to make it exceedingly clear that an EIS must be completed on any proposed endangered or threatened specie preservation activity that must assess in detail the economic, property and human impacts of such a program. This EIS must justify a preservation program — not only assessing man's activities and effects on specie habitat but the specie's activity and habitat effect on man's activities.

- (3) The Act should be amended to delete provisions which require maintenance of a species and its habitat in an effort to prolong or bypass a natural extinction process.
- (4) The Act should be amended to eliminate preservation programs which unrealistically protect and propagate "pest" species, e.g. walking catfish and should instead allow for a representation of the species under controlled management in an area which clearly poses no threat to other species in the ecosystem, including man and his activities.
- (5) The Act should be amended to clearly state that the Act does not supercede other land use and multiple-use laws and that Act programs must be integrated with other land use programs in a considered, justified and balanced manner with existing laws and programs.

Mr. Chairman, thank you for this chance to tell my story and present the three Associations' position on the Endangered Species Act during these oversight hearings. On behalf of the ANCA, NFLA and PLC, I would like to submit further documentation concerning inequities in the Act and additional recommendations for the oversight hearing record.

Supplemental Statement to
 JULIAN BRZOZNOWSKI STATEMENT
 from
 AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION
 NATIONAL LIVESTOCK FEEDERS ASSOCIATION
 and the
 PUBLIC LANDS COUNCIL
 before the
 SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
 RESOURCE PROTECTION SUBCOMMITTEE
 ENDANGERED SPECIES ACT OVERSIGHT HEARING
 Thursday, July 22, 1977
 Washington, D.C.

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ENDANGERED SPECIES OVERSIGHT HEARING

JOINT TESTIMONY

The American National Cattlemen's Association and the Public Lands Council, and the National Livestock Feeders Association respectfully submit this testimony to the Senate Environment and Public Works Committee, Resource Protection Subcommittee relative to the oversight hearings on the Endangered Species Act of 1973.

Numerous inequities inherent within the Act and federal activities in implementation of the Act have created considerable alarm amongst the combined constituencies which we represent. These inconsistencies which conflict with other national policies have no doubt disturbed members of this Subcommittee also and provided the genesis for these Oversight Hearings.

In philosophy and theory, protection of certain plant and animal species whose populations are diminishing significantly in number due to man's activities in and in proximity to a specie's habitat is an admirable goal — and is embodied in the Endangered Species Act. However, the Act was conceived in an atmosphere of alarm and high emotions. Legislators, agencies and the people of this nation are now coming to terms with the actual impact of the Act. There is no need for us to go into detail on the various illustrations of negative impacts of the Act on our national economy and growth. Newspapers and the media have documented these instances in both their news and editorial departments. We wish to present evidence of other major issues inherent in the Act and some recommendations for relieving the adverse effects of this legislation through amendments and implementation activities.

(1) There appears to be no logically developed plan for implementation of the Endangered Species Act that integrates it in balance for consideration of other legislation and with national goals for optimum food, fiber and energy growth. In fact, implementation of the Act is moving ahead without

adequate consideration for anything other than a preservation program for many species for which there is little or no sound scientific data upon which to justify a rational decision. The Act's implementation thus far has blatantly overlooked such standard procedures as adequate public input and participation in the decision-making process, complete consideration of the effects of absolute specie and habitat protection on the people who live in proximity to the specie habitat, or the consideration that a particular specie might well be on its way to a natural extinction through no fault of man.

Perhaps even more significant, as of this date, implemenation of the Endangered Species Act has not been subjected to the Environmental Impact Statement process as provided in the National Environmental Policy Act of 1969. For some years now, communities and commercial enterprises have been subjected to the EIS process when their activities potentially affected the environment. There is no reason for excluding species from being subjected to the EIS process in assessing their activity and habit patterns on the human environment.

(2) There are no provisions to evaluate the cost-effectiveness of specie preservation programs, no assessment of the economic consequences of a program, and no consideration of the alternative land and resource uses which will be lost. Provisions of the Act affect other existing laws, policies and regulations. The Act ignores national objectives in the development and optimum utilization of renewable resources and thereby affects the welfare and future of every citizen in this nation.

The adverse economic consequences of this Act are overwhelming, not only in restricting economic activity and growth but through direct and indirect program costs. The total project cost for the Fish & Wildlife Service to implement the Endangered Species Act using current programs and procedures would exceed \$97.4 million per annum or \$487 million through 1981.

Resource planners and managers will not be able to make optimal use of the public lands under the conditions of the Act but will have to subordinate traditional uses to providing habitat for questionably designated endangered species. Further, the level of interference in multiple-use land planning decisions will not depend exclusively upon plans for enforcement of the Act. The use of federal lands will often be dictated by the multitudinous court decisions which are encouraged by the Act.

The Bureau of Land Management may well find that it is unable to issue a grazing permit without creating even more extensive controversy about impacts on species habitats. Essentially this has already occurred as a result of the court required EIS's on BLM grazing allotments (NRDC v. Morton). The USDA might experience extensive conflicts with the Act in conducting their soil conservation programs. Even more alarming, food production, fiber production and energy resource development could conceivably be brought to a screeching halt by this Act.

Clearly the Act offers enormous potential for disruption and the termination of renewable resource utilization and the beginning of single-use management of the federal lands for the purpose of preserving species. However, beyond the impacts that Act is having on federally owned lands the potential infringement upon private rights is phenomenal. If a threatened or endangered species has critical habitat on private land, Section 7, Inter-Agency Cooperation (PL 93-205) could clearly prevent the landowner from enjoying his constitutional right to full use of the land. If the Act is not amended, the Secretary will be forced to "take" such lands and this action would result in atrocious denial of the property rights of citizens.

Section 7, Interagency Cooperation (PL 93-205) addresses the Secretary's authority to work with other Federal departments and agencies to assure the

the conservation of listed species by taking actions necessary to ensure that Federally funded or assisted activities do not result in threats to the continuance of listed species or result in the destruction or modification of critical habitats. The key phrase in this section is "critical habitat". Essentially, this authorizes the Secretary to halt activities which might even marginally adversely affect a listed species habitat. This creates situations where a landowner will not be issued a dredging permit for example because some listed species needs the shallow water as part of its critical habitat. It makes no difference that the landowner must dredge his pond as part of his ongoing business operation — that particular species must be catered to irrespective of the hardships cast upon those individuals who are also part of that particular habitat ecosystem. The myopic qualities of this Act are mindboggling. The threats to landowner rights and to the protection of property are staggering.

The Endangered Species Act recognizes only one national goal. It makes no provision for the balancing of this goal with major significant national needs that are far more important than this single purpose.

(3) The programs, procedures, and processes used to list species effectively limit adverse comments on species nominations and do not adequately incorporate or provide for public input and review. The process of determining whether or not a species is endangered seems to consist of the presentation of a list by a small number of individuals, the publication of the list as a proposal in the Federal Register and then based not on scientific data but instead on public reaction, a species is listed as endangered or threatened. The process pits one group against another leaving the agency in charge essentially free to make whatever determination they wish. In recent instances, the agency makes its determination, a group sues the agency, and the courts interpret what the course of action should be.

Quite frankly, it is our feeling that the more recent environmental legislation passed by Congress has displayed a blatant lack of clarity and has all but said "We've dealt with the issue in philosophy. You clean this legislation up in the courts." Congress must take the responsibility for amending this law. All the courts can do is interpret the language of the law for each individual case. To leave the Act unamended is to shirk legislative responsibility.

Recommended Amendments

(1) Section 7 of the Act must be amended to eliminate the potential authority to harrass private property owners and deny them personal property protection rights. Further, Section 5 Land Acquisition, must be amended to eliminate authority for the "taking" of private lands for preservation of listed species unless with the expressed consent of the landowner.

(2) The Act should be amended to make it exceedingly clear that an EIS must be completed on any proposed endangered or threatened specie preservation activity that must assess in detail the economic, property, and human impacts of such a program. This EIS must justify a preservation program not only assessing man's activities and their effects on the specie habitat, but the specie's activity and habitat effect on man's activities.

(3) The Act should be amended to delete provisions which require maintenance of a species and its habitat in an effort to prolong or thwart the natural extinction process.

(4) The Act should be amended to eliminate preservation of "pest" species, e.g. the walking catfish, and should instead allow for a representation of the species under controlled management in an area where the pest species cannot affect dramatically other species in its ecosystem.

(5) The Act should be amended to clearly state that the Act does

not supercede other land use and multiple-use laws and that Act programs must be integrated in a considered, justifiable, and balanced manner with existing laws and programs.

Wise resource allocation is an increasing necessity for this country. While we should continue to conserve and protect this country's natural and native land, animal, and plant types, it should not be at the expense of the welfare and economic growth of this country. The time to act on this legislation is now. We cannot afford any more delays in needed water and utility projects, food, fiber, and energy production programs and activities. The federal, state, and private lands hold invaluable natural resources which must be utilized in a productive manner -- not eliminated as potential resources by the impacts of this Act.

STATEMENT TO THE SENATE COMMITTEE ON ENVIRONMENT AND
PUBLIC WORKS

SUBMITTED BY

AMERICAN FUR MERCHANTS ASSOCIATION, INC.
101 WEST 30th STREET NEW YORK, NEW YORK

Mr. Chairman, members of the Committee, I am Harvey Liebergall, President of the American Fur Merchants Association. Our Association represents a large number of fur dealers throughout the United States. As the fur industry is largely centered in New York City, the businesses of most of our members are located there. By and large the members are small, proudly independent businessmen. As our members deal in wild furskins as well as ranch raised raw and finished skins, we are deeply concerned with the impact of the Endangered Species Act and the related Lacey Act.

This Association publicly supported the Endangered Species Conservation Act of 1969 and the Endangered Species Act of 1973. We continue to support the '73 Act and its purpose of protecting endangered wildlife species in America and abroad. That support arises out of keen self-interest, if nothing more, for the lifeline of the fur industry is a substantial self-sustaining wildlife population. Our industry supports the conservation of wild animals, just as the lumber industry supports the conservation of trees. Efficient and humane wildlife management will keep us in business in the years to come. Spoilage and overkill will soon end the wild fur business we now conduct.

Our problems with the Endangered Species Acts and the Lacey Act fall, in part, into the legislative area and, in part, in the area of the administration of the Act. We will review with you today only those problems that we believe are in the legislative area.

1. The Need for Statutory Package Marking Requirements:

The Lacey Act, 18 U.S.C. 42-44, is the basic legislation under which most of the violations alleged by the Fish and Wildlife Service have been brought against members of our industry. It, therefore, provides us with one of our greatest problem areas. The background is as follows:

Prior to the enactment of the Endangered Species Conservation Act of 1969 the Lacey Act prohibited the shipment in interstate or foreign commerce of any shipment of wildlife or wildlife parts unless the shipping package bore on the exterior, in conspicuous markings, the name and address of the shipper and consignee and an accurate statement of the packaged contents by species and quantities.

Compliance with this statutory requirement constituted an open invitation to theft for it required, by the exterior markings, full disclosure of the valuable contents of much of our industry's incoming and outgoing shipments. As a consequence, many members of our industry refused compliance with the marking requirements and FWS enforcement became negligible.

The House and Senate came to the industry's rescue, we thought, in the adoption of the Endangered Species Conservation Act of 1969. In Senate Report 91-529 accompanying H.R. 11363 in 1969, the Senate said of the relief provisions it proposed:

"Subsection (b) of this section would add a new paragraph to section 44 of Title 18 USC, which would authorize the Secretary to provide some other reasonable means for persons to notify the appropriate authorities of the contents of packages when it appears that marking, labeling or tagging of such packages would create a significant possibility of theft of the packages or its contents * * *

The labeling requirements may partially account for the recent increase in the theft of certain packages, particularly those containing valuable furs. The result of this high incident of theft has been an increased cost of insurance and in some cases a complete refusal to insure. The committee feels that the amendment contained in subsection (b) would provide the flexibility needed to develop new tagging methods which will reduce the possibility of theft. It would stress, however, that before the tagging requirements are waived, the alternative methods to be devised must be adequate to inform law enforcement authorities of the contents of a shipment."

The new subsection (b) was approved in both the House and Senate and became law. The industry believed then that the Fish and Wildlife Service would recognize the fact that exterior marking symbols which directly or indirectly identified the contents of a package as "Wildlife" would, without more, subject it to a high risk of theft in view of the relatively high value of most all furskin shipments.

However, in an effort to make the identification of such packages easy for its limited enforcement staff, FWS adopted regulations which included as a part of every authorized symbol the initials "FWS" (clearly meaning Fish and Wildlife Service).

Our industry promptly pointed out to FWS that the required use of the FWS initials as a part of each authorized symbol negated the relief we thought had been provided by the Congressional adoption of a symbol marking procedure.

Sometime thereafter the FWS tempered the symbol marking requirements of the regulations (50 C.F.R. Sec. 14.82(e)) by requiring only the initials "WF" as part of the symbol, rather than the initials "FWS". Our industry continued to point out the fallacies in this regulation for it was clear to us that symbols using "WF" clearly indicated to package handlers throughout shipping procedures in the U.S. and abroad that packages so marked contained wildlife parts.

I should point out here that in addition to our problems with the symbol markings required by FWS, the regulations adopted shortly after enactment of the symbol measure required that all applicants for symbol marking authority would have to provide FWS with a detailed statement of the reasons why

"the marking of packages with names and addresses of shipper and consignee and an identification by name and number of the contents of the package"

would create a significant possibility of theft of such packages or their contents. (50 C.F.R. 14.83(a)(7).) That requirement remains today as one of the essentials to a symbol marking application although we have frequently pointed out to FWS that the mere suggestion that the contents of a package consisted of furs was sufficient to create a significant possibility of theft of the package or its contents. However, we have been unable to convince the FWS of that fact of life and so it has gone its way administering the symbol marking provisions of the law contrary to what we believe to have been the Congressional intent.

We believe that further evidence of FWS disregard for Congressional intent lies in another provision of the Regulations. Section 14.83(a)(8) of 50 C.F.R. requires that each application for symbol marking authority provide to FWS a

"description of an evidence [sic] showing actual thefts, if any, incurred by applicant which can be ascribed to marking requirements [of the regulations], including dates, descriptions of goods, place, if known, value, including affidavits, invoices, correspondence, and insurance claims relative thereto to conclusively show actual loss by applicant * * *."

Such requirements indicate that only upon production of such proof will symbol marking be authorized. This we believe goes far beyond the intention of the Congress.

To complete the history of FWS regulations regarding markings I call your attention to the fact that in 1976 the Service amended Section 4.82(a) of 50 C.F.R. by adding what it called an "alternative" to symbol marking. As to all packages not bearing a Fish and Wildlife Service authorized symbol, it provided that the shipper could eliminate the exterior marking of the names of the consignees and shippers and the nature of the number of the contents so long as the package was clearly marked with the word "Wildlife" and on the further condition that a shipping document indicating the name and address of the shipper and consignee and the nature and number of the contents be attached to each package exterior in a resealable envelope.

The medicine thus adopted by FWS was worse than the illness it purported to treat. The 1976 amendment to the regulation provides no practical alternative to symbol marking which would contribute to the avoidance of theft in our industry. Non-symbol

marked packages which previous to the amendment did not require an exterior marking of "Wildlife" would, under the "alternative," have to bear that word in bold lettering to be lawfully shipped. The contents of the non-symbol marked package, instead of being disclosed on the exterior of a package along with the names of the shipper and consignee, now, under the "alternative," are illegal unless disclosed in a document attached securely in a resealable envelope to the package exterior where it can be easily read by anyone having access to the shipment, including thieves and tipsters.

A practical alternative to the present theft promoting marking requirements would be one under which observance of a package would not reveal to potential thieves or their confederates information of assistance to them in selecting shipments which contain merchandise of substantial value such as furs which are readily marketable in many metropolitan areas.

We have presented to FWS and will be glad to have our Washington counsel present to the staff of this Committee, a statement of detailed procedures required by Customs and FWS which establishes that identification of shipments of wildlife products can readily be made by FWS without requiring shippers to advertise the contents of their shipments with the word "Wildlife," or the letters "WF" affixed to the exterior of shipping packages, and without disclosure of contents on package exteriors or in content lists attached to package exteriors.

Marking problems have become our major concern with FWS. We urge that this Committee recommend the adoption of clarifying legislation. The Committee might wish to first request that FWS make studies of and report to the Committee alternatives to procedures now authorized by FWS regulations. Our industry will be more than happy to fully cooperate in such a study. Alternative solutions would be such as to make unnecessary identification marked on or attached to the exterior of furskin packages. Such identification should be provided instead pursuant to legislative amendments by means of the documents which accompany shipments throughout the shipping procedures.

In May 1976, a U.S. Magistrate in Brooklyn, in the case of U.S. v. Salzman held that normal shipping documents alone, unattached to packages containing wildlife parts but readily available to FWS agents at ports of entry or exit, constitute constructive compliance with Lacey Act marking requirements if those shipping documents disclose the contents of the packages they cover and disclose the names and addresses of the shipper and consignee. The Magistrate fully appreciated something FWS has refused to recognize, i.e., that packages passing through busy shipping points which bear markings disclosing that the packages contain valuable furs, creates, with nothing more, a significant possibility of the theft of the package or its contents.

2. Notice of Seizure or Withholding of Clearance:

Section 12.11, Title 50 C.F.R. requires the FWS Director "as soon as practicable following his seizure" of wildlife or

furs, to give notice to the owner or consignee. We submit that the term "as soon as practicable" needs a specific outside limit which FWS has refused to adopt and which the Congress should therefore establish. Spoilage of raw furskins commences rapidly in hot weather or in nonrefrigerated storage. Notice of seizure should therefore be given to the owner and consignee very promptly. Personal service of the notice, or immediate telephonic or telegraphic notice to be followed up by confirmation letter is needed to avoid irreparable damage to the seized goods before a determination can be made as to the propriety of the seizure and the legality of the shipment.

In practice, the language "as soon as practicable" has meant that no timely notification of seizure is given. The shipper or consignee often learns of the seizure only indirectly, many days after seizure only because the forwarding agent inquired into the delay in receipt of the goods. We recommend that the Act be amended to require prompt and certain notification of seizure or of delivery delays initiated by FWS to allow time for its investigation of possible violations.

3. Establishment of an Industry Advisory Committee:

The problems thrust on the industry by the newly instituted licensing marking and other problems are such that we urge the adoption of a legislative requirement for formation of an Industry Advisory Committee. The Advisory Committee should best be given

a broad mandate to advise with FWS as to various administration features of the Endangered Species Act, the Marine Mammal Act and the Lacey Act. Use of the Advisory Committee in such capacity could do much, among other things, to:

- (a) establish informed standards for warehouse storage of seized furs;
- (b) provide a means of periodic review of such standards based on experience; and
- (c) foster a spirit of cooperation and understanding between the Government, conservation groups, the fur industry and possibly other affected industries and thus aid in the solution to enforcement, licensing, marking and other problems.

4. Bonding Procedures To Release Seized Shipments:

The bonding of seized shipments is provided for in Title 50, Sec. 12.1 et seq. of the Code of Federal Regulations. However, neither the Act (Sec. 11(e)(3)) nor the Regulations establish or suggest the conditions of the bond necessary to effect the release of seized furskins; nor do they provide guidance as to the conditions for eventual release of the bond in whole or in part. The law should be amended to provide that the bond is to be released immediately upon the failure of FWS to bring civil or criminal proceedings within a specified limited time, upon a finding of not guilty in civil or criminal proceedings commenced incident to the seizure, upon the dismissal of such

proceedings once commenced, or upon the order of an Administrative Law Judge based upon a finding that there is no longer any reasonable basis for failure to release the bond. The Act should also be amended to provide that when a respondent in a civil penalty proceeding brought incident to the seizure of goods has exhausted all avenues of appeal or the time for an appeal has expired, the securities, if any, pledged as security under the bond are not to be applied by FWS to the payment of any civil penalty assessed against the respondent without his consent.

5. Inability To Sell, Ship, Etc. Inventories of Furskins Lawfully Purchased:

Finally, when a wild animal is first placed on the Endangered Species List it becomes illegal, except under the hardship exception of Sec. 10(b), to sell, transport, ship, import, export or even possess parts or manufactures of parts of such species. The Sec. 10(b) hardship exception relates solely to goods subject to a contract of purchase, sale or shipment, etc., entered into prior to the effective date of the addition of the species to the Endangered Species List. No provision is made in the law for the exception of skins or parts of the newly listed species which are not the subject of any then existing contract but which are on hand in the inventory of a dealer, manufacturer, or other businessman on the date the species is added to the list. Such skins would be ones purchased prior to the effective date the species was listed -- perhaps weeks or months prior thereto.

The ends of conservation are not served by making it impossible for the owner of skins already taken to sell or dispose of them if he has in no manner participated in an illegal taking or other violation of conservation measures. The Secretary of Interior should therefore be authorized to exempt such skins from the prohibitions of the Endangered Species Act through the device of a licensing or similar provision. In doing so it would be reasonable by amendment to require the registration of the skins within a short period after the initial listing of the species. The owner should also be required to submit satisfactory proof that such skins were in the owner's possession or control on the effective date of the listing. To discourage last-minute rush buying, it would also be reasonable to provide that no license for subsequent sale or shipment of such skins be issued if the Secretary establishes that the skins were brought or contracted for after publication in the Federal Register of the Notice of Intention of the Secretary to add the species involved to the Endangered Species List.

If such an amendment is not adopted, legitimately owned furs taken before a species is added to the list may be rendered completely worthless in the hands of the owner. Under such circumstances owners are unfairly penalized by ownership on a listing date of legally acquired merchandise.

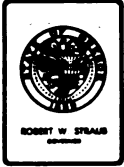
I indeed appreciate the opportunity to be heard here today. I shall be glad to answer any inquiries any Committee member may have.

SUMMARY OF LEGISLATIVE PROPOSALSMADE BYAMERICAN FUR MERCHANTS ASSOCIATION, INC.At Oversight Hearings Before the Senate
Committee on Environment and Public
Works Held July 28, 1977

The attached Statement of Harvey Liebergall, President of the American Fur Merchants Association, Inc., supports the following legislative proposals in respect to the Endangered Species Act and the Lacey Act.

1. The need for statutory package marking requirements;
2. Notice of seizure or withholding of clearance;
3. Establishment of an Industry Advisory Committee;
4. Need for bonding procedures to release seized shipments;
5. Sale of inventories of furskins lawfully purchased

STATEMENTS SUBMITTED FOR THE RECORD



Forestry Department

OFFICE OF STATE FORESTER

2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2580

June 28, 1977

The Honorable John C. Culver
United States Senator
1327 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Culver:

It is our understanding that oversight hearings on the Endangered Species Act are scheduled for July 19 through 21 by the Resource Protection Subcommittee of the Senate Environmental and Public Works Committee. The concerns recently focused on the Endangered Species Act by the events of the Tellico Dam project are of great interest to this department for administrative and technical reasons. We would like to take this opportunity to express our views on the subject as a public agency vitally concerned with the management of natural resources, specifically forest lands in the State of Oregon.

In our opinion, there can be no serious doubt that the Endangered Species Act is very essential legislation and we have consistently supported efforts to preserve endangered species and their habitat through administration of the Oregon Forest Practices Act and through management on state-owned forest lands in Oregon. However, we do have concerns regarding the procedures involved in the administration of the Act and our access as a state agency to the decision making process. These concerns are:

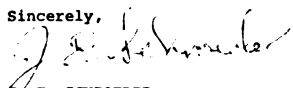
1. Designation of critical habitat sometimes appears to be excessive and somewhat capricious.
2. The accumulative socio-economic impact of prohibiting essential human activities in areas of critical habitat for the large number of currently proposed species is staggering to the mind. At this time, we see no provisions for balancing social and economic costs with the proposed social and economic benefits of preservation, and
3. We have great difficulty in keeping abreast of the species being proposed for the "threatened or endangered" list.

In the process of the oversight hearings, we urge the Resource Protection Subcommittee to consider the following recommendations:

1. More specifically define the criteria for key concepts such as critical habitat, threatened and endangered;
2. Recognize the need for consistent and dependable interpretation of the Act and subordinate regulations which directly influence State activities related to threatened or endangered species;
3. Require clear demonstration of endangerment and the need for protection before species are listed;
4. Recognize the need to balance the socio-economic benefits and the socio-economic costs in applying protective regulation to critical habitat;
5. Provide for educational programs on currently listed species and their habitat to be made available to appropriate segments of the public.

We assure you that the forestry community in Oregon has an inherent interest in the management of endangered species and their habitat and the Oregon State Forestry Department will assist in any meaningful way to help achieve the goals of the Endangered Species Act.

Sincerely,


J. E. SCHROEDER,
State Forester

JES:NS:afc

cc: State Department of Fish and Wildlife
Office of the Governor
U.S. Forest Service, Region 6
Bureau of Land Management, Portland Office
Oregon Congressional Delegation



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
P. O. BOX 1987
HARRISBURG, PA. 17120

July 27, 1977

ADMINISTRATIVE DIVISIONS:

ACCOUNTING	787-4488
ADMINISTRATION	787-8870
LICENSE SECTION	787-8004
PERSONNEL	787-7836
GAME MANAGEMENT	787-5888
INFORMATION & EDUCATION	787-8711
LAW ENFORCEMENT	787-8586
LAND MANAGEMENT	787-8618
REAL ESTATE	787-6886

Honorable John C. Culver, Chairman
Subcommittee on Resource Protection
Committee on Environment & Public Works
344 Russell Senate Office Building
Washington, D. C. 20510

Dear Senator Culver:

Traditionally Pennsylvania has been one of the nation's leaders in the conservation of renewable natural resources. However, due to a funding base derived from the sale of hunting licenses, major management efforts have been largely restricted to huntable game species and the various habitats that support them.

With the growing and justifiable demand for programs designed to benefit the broad spectrum of non-game species of fish and wildlife, the Pennsylvania Game Commission heartily endorses the concepts of S. 1140 with the following qualifications:

So as to limit the benefits of the Act to those forms of wildlife which are generally recognized and esteemed by the public and restrict work to the classes of the animal kingdom, it is suggested that the definition of "fish and wildlife" in Sec. 3 (2) and the definition of "non-game species" be combined to read: Sec. 3 (2) The term non-game and wildlife means and includes any wild unconfined mammal, bird, reptile, amphibian, fish, mollusk, or crustacean which is valued for cultural, esthetic, educational, or non-consumptive purposes, or which may not be legally fished for, hunted, trapped, or otherwise taken for sport, food, or commercial purposes within the period or at the place directly affected by or involved in a non-game program in a state participating in programs authorized under Sec. 4 of this act.

As written Section 5 (f) (5) places statutory limitations on the use of funds for information/education, law enforcement and extension services. We favor unrestricted expenditures in these areas when responsible state wildlife officials deem the need exists.

May we suggest excise taxes as a means of financing non-game programs. This source of revenue would eliminate the uncertainties inherent in Congressional appropriations and assure continuity in the work. While

the problems of establishing a rationale for such taxes are formidable, we feel outdoor enthusiasts who purchase wild bird feed, cameras and binoculars and hiking and camping equipment should be considered as a source of funds.

Another alternative might be the allocation of a fraction of the revenues derived from the sale of offshore oil leases and subsequent royalties. Inasmuch as non-game programs would ultimately benefit all citizens of the nation, this latter course would probably be most equitable.

We commend the sponsors of this bill for the initiative and foresightedness and trust our comments will be helpful in your deliberations.

Very truly yours,


Glenn L. Bowers
Executive Director



102nd AFA ANNUAL MEETING

October 16-19, 1977

Del Monte Hyatt House, Monterey, California

THEME: The Conservation Challenge:Maintaining Production; Assuring Protection

Founded 1875

1319 Eighteenth Street NW Washington DC 20036 telephone (202) 467-5810

July 15, 1977

The Honorable John C. Culver, Chairman
 Subcommittee on Resource Protection
 Committee on Environment and Public Works
 United States Senate
 Washington, D. C. 20510

Dear Senator Culver:

The American Forestry Association wants to be on record in support of the Endangered Species Act (P.L. 93-205) and urges that it be protected from weakening amendments. The purposes and objectives of the Act are sound and, properly applied, this law provides needed conservation safeguards. Improperly used, however, the Endangered Species Act can be counterproductive and actually threaten its own survival. Our plea is for reasonable application of the law and for balanced consideration of economical and social factors as well as environmental in its use. Without this balance and practical application the law is doomed.

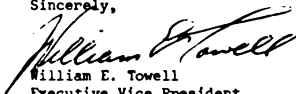
Every project has negative environmental impacts. There must be trade-offs between needs and adverse effects. The whole challenge of conservation is how to make rational use of land and water resources and still provide adequate environmental protection. Endangered wildlife and plant species deserve all the protection we can afford to give them, but not beyond reasonable limits. If this law is used merely as a legal tool to block action on projects opposed on other grounds, it will not last.

Where do we draw the line on endangered species important enough to impose the law? This can be answered only for each specific case. It would be unwise to make rigid criteria for its application. On the other hand, it would be equally foolish to permit misuse of the statute and allow insignificant species of animal or plant life to deprive people of resources they must use. The answer is common sense and balance. What many people fail to realize is that nothing in nature is static. New species are constantly coming into being through natural evolutionary process, just as old species are disappearing. We may slow down or alter the course of change, but we cannot stop it.

Wildlife species are important in their own right and most should be protected, but probably their greatest role is as an indicator of environmental quality. When we wipe out a fish or wildlife species we are altering and usually degrading our own human environment. The relationships between plants and man's habitat are less clear, but nevertheless enter into the total ecological balance. It is these interrelationships between man, plants and animals that make the Endangered Species Act a necessary part of our environmental arsenal.

Enclosed for the hearing record is the May issue of AMERICAN FORESTS containing an editorial on the Endangered Species Act under my by-line, "What's New At AFA." It expresses the sentiment of The American Forestry Association. Our chief concern is that the law is being used primarily as a legal tool to block development rather than from a genuine concern for endangered species themselves. Where the line is drawn between species of major importance and those too insignificant to cause concern, we do not know. But, we are absolutely certain that every major action causing environmental impacts must be weighed on the scales of balance between environmental effects, social needs, and economic costs and benefits. Misuse of the Endangered Species Act could be just as bad as environmental recklessness. Our plea is for retention of the law, but common sense and balance in its application.

Sincerely,



William E. Towell
Executive Vice President
The American Forestry Association

The American Museum of Natural History

Central Park West at 79th Street New York, New York 10024 (212) 873-1300



OFFICE OF THE DIRECTOR

August 9, 1977

The Honorable John C. Culver
Chairman, Subcommittee on Resource Protection
United States Senate
Senate Office Building
Washington, D. C. 20510

Dear Senator Culver:

On returning from leave in early August, I found awaiting me a copy of the paper submitted by Dr. Stephen R. Edwards to your subcommittee, on the subject "The Effects of the Endangered Species Act on the Systematics Collections Community." It was sent to me in my capacity as chairman of the study council on the subject that had been formed some years ago by the Association of Systematics Collections. Dr. Edwards presentation included material describing the institutional members of the A.S.C. and their role in our scientific community.

The matters being studied now by your subcommittee, and those touched on by Dr. Edwards, have occupied my attention for some time, both as representing the A.S.C. and in my capacity as Director of the American Museum of Natural History, where I have observed the effects of law and its implementing regulations on the activities of the several hundred zoologists who work with us directly or indirectly.

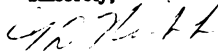
My point in this letter is to confirm the seriousness with which this segment of the scientific community is being affected and to express how seriously we view the problems. It is my own opinion that the effect of the regulation and permit requirements being imposed on the users of wildlife for scientific purposes -- often in apparent disregard for the protection of scientific interests written expressly into the law -- will lead eventually to the end of systematics biology as a scientific discipline in the way that we now know it. We are being hemmed in on the one hand by laws protecting wildlife in the interests of conservation, and on the other hand by the rising cry for the legal recognition of animal rights. Though in both cases the laws are written with valid intentions, wholly supported by the scientific community, and usually make specific provision to protect scientific interests, their effect has to be judged by the enforcement provisions with which we must comply. These, on international, national, state and even local levels, are becoming increasingly burdensome and restrictive, contrary -- in my opinion -- to the intent of the laws themselves.

Some of my more specific reactions to the problems confronting us, and how we ought to approach them, were expressed last year in a paper that I published in CURATOR, our journal for the museum profession. I take the liberty of enclosing a copy, which may be of interest to you or your subcommittee staff.

I am most pleased that your subcommittee has begun to examine the effects of Federal law on the areas of our concern. I hope you will continue. I consider it vital to the future of our science that we have the understanding of our lawmakers, and their support in assuring that we can continue to practice it in the interests of humanity and our nation.

If I can assist you or your subcommittee further in your deliberations or studies, please let me know.

Sincerely,



T. D. Nicholson
Director

enclosure: CURATOR Vol. 19, No. 1 (pp 21-28)

cc: Senator James A. McClure

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Systematics Collections and the Law

THOMAS D. NICHOLSON, DIRECTOR

THE AMERICAN MUSEUM OF NATURAL HISTORY

Curators in archeology and the fine arts increasingly recognize restrictive agreements and laws governing traffic in culturally significant properties as another "cost of doing business." In contrast, until recently curators in zoology and botany have felt relatively secure in what they have considered to be their inherent right to collect and exchange specimens without undue bureaucratic inconvenience. All this has changed in the past few years. Curators in natural history museums are suddenly recognizing that becoming familiar with and complying with a whole host of regulations promulgated on many levels of government is a price they will soon have to pay if they are to continue doing business. This appeared to be one of the general conclusions to emerge from the session "Systematics Collections and the Law" held as part of the third annual meeting of the Association of Systematics Collections at Cornell University on May 9, 1975.

Curators recognize that they are themselves partly responsible, in an odd way, for the state of affairs in which they find themselves. For years they have been criticizing the depredations on wild populations caused by commercial or nonscientific hunters and the absence of any international or national restrictions on the ultimate source of the problem—the consumer. They have been saying, in effect, that the exploiters cannot be curbed effectively unless the market at which they are aiming is removed. So the scientists have been pressing for state, national, and international laws and agreements that would have the effect of controlling or blocking traffic in animals and plants of certain kinds. And, supported by a growing army of political and citizen conservationists, they have been largely successful. Unfortunately, however, they have not foreseen certain effects of their efforts on their own work and responsibilities.

Successive laws passed by the United States Congress to provide controls on importation and interstate shipment of wildlife have been considered almost universally by zoologists to be beneficial. But laws must eventually be interpreted and implemented by government bureaucracies; they must act impartially on all citizens of a class; they require an increasingly complex set of interpretive regulations to cover their impact in detail. It was here that zoologists—and botanists to a lesser extent—got into trouble. When the regulations were written, in some cases many years after the laws were passed, the scientists found, first, that they had not been aggressive enough in protecting the interests of their professional groups to the extent that the law allowed when the regulations were being formulated. Second, they had not been alert enough to read and understand the regulations carefully, thus learning their responsibilities. Therefore, the scientists have not always carried out the steps needed to give their operations the necessary cloak of legality.

In a sense, the scientists could not be faulted for either shortcoming. In the first case, they had no effective organization through which to express their interests and concerns, to rally their strength and bring it to bear on the formulation of the regulations. The few who were alert to the potential difficulties were voices crying in the wilderness. Not hearing any great and unified clamor, the agencies writing the regulations could not really be blamed for not heeding the few cries. And in the second case, curators are not lawyers; they are scientists. The regulations, while perhaps not written by or for lawyers, seem to require a particularly retentive and detailed kind of mentality to read and comprehend. Quite honestly, the enforcement and field representatives of the regulatory agencies themselves profess some difficulty in the interpretation and application of the laws and regulations to the scientific community. How, then, could we fault the curators for their failure to read, understand, take advantage of, and comply with the regulations to which they were now subject?

Perhaps we need some representative organization or body that could provide the liaison between the regulatory agencies and the curators—that could identify and interpret the laws and regulations for curators in language they can understand. This agency could also identify the kinds of problems the regulations create for the community of systematics biologists; interpret those problems to the agencies that are writing, rewriting, and enforcing the regulations; and use its knowledge and influence to propose amendments to the regulations or to effect their interpretation in a manner that would—to the extent the law allows—be most compatible with the needs and interests of scientists.

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The only agency that seems available and willing to represent the systematics biology community in these ways is the Association of Systematics Collections, whose institutional members probably include the vast majority of scientists affected by the controlling regulations. It was for this reason that the A.S.C. convened the session on "Systematics Collections and the Law" at its 1975 annual meeting.

The seminar was organized and chaired by Thomas D. Nicholson, director of The American Museum of Natural History and a member of the A.S.C. Council. The participants included representatives from the systematics community—basically, interested curators who were beginning to see the kinds of problems that actually or potentially were staring them in the face if the regulations were to be enforced literally—and representatives of the federal regulatory agencies charged with writing and enforcing the controlling regulations. The participants were:

- Martin Chayette, National Import Specialist, U.S. Bureau of Customs, New York, New York.
- Oscar Clabaugh, Department of Veterinary Services, Animal Science Inspection Service, U.S. Department of Agriculture, Hyattsville, Maryland.
- Frank E. Cooper, Division of Plant Protection and Quarantine, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Hyattsville, Maryland.
- Jack E. Downs, Special Agent in Charge, Fish and Wildlife Service, U.S. Department of the Interior, New York, New York.
- Thomas S. Elias, Assistant Director, The Cary Arboretum, New York Botanical Garden, Millbrook, New York.
- Wayne King, Director, Conservation and Environmental Education, New York Zoological Society, Bronx, New York.
- Wesley E. Lanyon, Chairman and Curator, Department of Ornithology, The American Museum of Natural History, New York, New York.
- Jack Lipps, Division of Plant Protection and Quarantine, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Hyattsville, Maryland.

The chairman stated the objectives of the seminar as the following:

1. To acquaint the A.S.C. members with the limitations under which they must carry out their work because of existing laws, regulations, and permit requirements.
2. To acquaint the representatives of federal regulatory and enforcement agencies with the nature of collection-related activities that are essential to the work of systematics biologists and other

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scientists, and with the real or potential effects of regulations on these activities.

3. To discuss the need for a comprehensive document that could guide scientific collectors and their institutions to the regulations and requirements with which they should be familiar.

Each of the participants was asked to present a brief summary of what he saw as the actual or potential problems affecting the interface between collection-dependent institutions and federal regulatory and enforcement agencies. For the curators, this generally took the form of describing the practical and potential problems they saw in their fields as a result of the regulations that now restrict or control their activities with respect to collections. The representatives of the agencies generally described their interpretations of the regulations and permit requirements as being basically reflections of the responsibilities given to the agencies under the law. Following the presentations by the participants, an opportunity was given to the panel and to the audience to question or comment on the statements and to explore their ramifications in some detail.

Several things were made apparent by this session. First, it was clear that the problems of interface between scientific collectors and users of wildlife on one hand and the agencies required to regulate and control that work on the other are more complex and detailed than most biologists realize. The seminar did not discuss in any detail the increasing complexity of state regulations and permit requirements that affect collecting and traffic in specimens, although there were many allusions to the maze of regulations now existing. Indeed, it is not inconceivable that subunits of state governments—counties and cities—could impose their own regulations. Nor did the seminar cover the regulations and requirements of nations other than the United States. But it was clear that some means must be found to cope with the problems raised by state and international laws.

Another quite apparent conclusion was that there is usually little difficulty between the scientist and the field representative of the regulatory agency where both communicate with one another as to the intentions and purposes of their activities. By and large, the field representatives are sympathetic to the objectives and work of the scientists and are interested in helping them achieve results with the least possible interference and red tape. The scientists and administrators in the audience were encouraged over and over again to contact the field representatives well in advance of transactions that might involve problems, and to discuss with the agents the steps necessary to operate within the spirit and the requirements of the regulations.

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It was also apparent, however, that representatives of the regulatory agencies felt to some extent that scientists could and should do more to familiarize themselves with the laws and regulations controlling their work. They pointed out: the ways in which interested parties are given an opportunity to influence the writing of regulations interpretive of the law; the notice that is given prior to the writing and promulgation of the regulations; and the ready availability of the regulations and the agency representatives to assist in interpreting them. The scientists argued, on the other hand, that the proliferation and the increasing complexity of the regulations made it virtually impossible to keep up with them and to carry out their requirements until—all too often—it was too late.

Perhaps most significant was the clear indication that neither side, the systematics collections community or the regulatory agency representatives, fully appreciated the real or potential implications of the regulations in certain ways. The scientists began to realize that many practices they had been doing for years and had always considered necessary, ethical, and responsible, are now subject to control and permit. And they saw no logical reasons why some of these activities had to be licensed or reported regularly.

The regulatory agencies, on the other hand, were unsure of the application of their rules to certain kinds of activities that were probably not intended to be regulated but that were, at least in a technical sense. They also seemed to feel that there may be no logical reasons and no obvious practical benefits for some of the permits and reporting requirements. They expressed some surprise at the range and extent of activities in the collection-oriented institutions that may fall within the province of regulatory control. They were unsure in some cases as to whether or not the regulations applied, or if they applied on technical grounds, whether it was intended that they should, and whether, in practice, they would or should be enforced.

This may all sound a bit mysterious, and it really is. The curators and administrators from the collection-oriented institutions seemed most bothered by the following:

1. The lack of consistency, clear authority, and purpose among state and federal agencies in regulating the collection of wildlife in the United States. It appeared in some instances that federal and state agencies were acting at cross-purposes. Federal rules clearly require that the collector hold a valid state permit before a federal permit can be issued, but cases were cited in which state authorities required the collector to hold a valid federal permit before accepting an application for the state permit.

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2. An attitude seems to be growing, among state regulatory bodies and perhaps even among some individuals employed in federal regulatory agencies, that the collecting of wildlife for scientific purposes is being done to excess, without adequate justification, and perhaps irresponsibly, to an extent that poses a real threat to the survival of species. This was suggested by examples from correspondence exchanged between applicants and regulatory agents, by very high fees for collecting, by the setting of very precise conditions and limitations on what could be taken, and by requiring collectors to be excessively precise in stating the purposes and extent of the activities they proposed.

3. Scientific collectors are sensing a shift in attitude toward their work, from "let us prohibit the taking of certain kinds of animals and plants known to be threatened or endangered and that may require protection for their survival," to "let us prohibit all collecting of wildlife for scientific purposes unless it is essential to a specific research project that is demonstrably beneficial to mankind." Some people may not see much difference between these two points of view, but to systematics biologists the differences are essential and go to the very heart of their work and the methods they have been using for centuries. Scientific collectors simply cannot always be specific about the sorts and numbers of specimens they may find or collect within a given locality. It is the nature of their science that they must have the opportunity to sample what they find, and they cannot always predict what this will be. They certainly agree that specific species—threatened, rare, or endangered—must be left alone in their native habitats, and they would consider it unethical and irresponsible to collect an animal or plant—whether it be threatened or not—needlessly. But they would find it extremely difficult, if not impossible, to work under conditions that would require them to be specific as to the nature, number, locality, and proposed research benefit of every specimen they might collect.

4. Scientific collectors are especially disturbed that certain animals, once they have been taken legally and with valid permit, cannot thereafter be loaned or exchanged freely between institutions and individuals. They see no reason for burdening this very heavy traffic in loan and exchange material with excessive permit and reporting requirements. They are unsure of how completely the regulations may apply to such things as collection loans, but they are worried that they may apply more fully than previously realized. And the collectors are concerned that some of their activities, such as collection loans—quite necessary and legitimate in their view, and in no way in violation of the spirit of the law—may be technically illegal. In some

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institutions this concern has been reflected in a growing reluctance—in proscription in a few instances—to lend specimens from their collections. Should the exchange of specimens between institutions and scientists be seriously reduced by the rules and permit requirements of regulatory agencies, another serious blow will be dealt to the way in which systematics biologists do business.

To all of the above complaints, agency representatives were sympathetic. But they pointed out that scientists have the responsibility to know the laws governing their work, that there are valid and liberal permit conditions benefiting the scientific user of wildlife, and that the agencies will cooperate to the fullest extent that the law, and its interpretation through regulation, will allow in encouraging, rather than impeding, the work of bona fide scientific and educational users of wildlife. The agents also pointed out, with some justification, that the greater the degree of freedom granted to scientific investigators, the larger the loophole they will be making for others to exploit.

It was intended that the seminar at Cornell would be a beginning to the identification and resolution of problems involving collections and the law, not an end. It did make considerable progress in realizing the first two of its objectives, but it did not go very far toward the third. That will require, it was realized, considerably more effort, energy, expense, and probably much more cooperation with and by the regulatory agencies. Some further steps have been taken since the meeting. The A.S.C. has appointed a council to pursue the matter, to recommend and to take specific actions. Some of the regulatory agencies have shown signs of recognizing how confusing the various rules and permit requirements may be, even to some of their own agents. They show some interest in exploring the possibility of combining the permit procedures of several agencies into one, of simplifying for scientists the processes of applying for and granting permits, and of separating the permit-granting authority from the law-enforcement authority of the agencies. Both scientists and agents recognize the need for a relatively concise “Rosetta Stone” to guide the collectors and users of collections through the maze of law and regulation that confronts them. Some representatives of the A.S.C. Council on Systematics Collections and the Law have already met again with representatives of one of the regulatory agencies to explore these and other possibilities and the ways in which the A.S.C. and its members may contribute to their realization.

Several federal granting agencies have recognized that these problems pose a serious threat to the efficient collection-related activities of systematics biologists and their institutions, and the A.S.C. has

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been encouraged to seek some grant assistance to aid its council and others in pursuing solutions to the problems that are being identified. Such funds, should they be forthcoming, could help the A.S.C. provide many services that the scientific community seems to need, such as the following:

1. Gathering state, federal, and international regulations affecting collecting and traffic in wildlife into a single information bank.
2. Disseminating timely information on the effects of existing regulations.
3. Guiding scientists and others on the most efficient procedures for identifying and obtaining the necessary permits.
4. Advising the scientific community on proposed regulations or changes in rules to which it should react before their adoption.

The A.S.C. may also play some part, through its Council on Systematics Collections and the Law, in influencing the attitudes of regulatory agencies toward the work of the systematics community, in the interest of helping the agencies to respect the nature and significance of that work in the regulations and permit requirements that they adopt and implement.

The Association of Systematics Collections has published the proceedings of the seminar on "Systematics Collections and the Law." Copies may be obtained by contacting Stephen R. Edwards, Executive Director, A.S.C. Secretariat, Museum of Natural History, University of Kansas, Lawrence, Kansas 66045.

Statement
of

SYDNEY ANDERSON, Ph.D.

on behalf of the

AMERICAN SOCIETY OF MAMMALOGISTS

in connection with
Legislative Oversight Hearings
on the Endangered Species Act of 1973

to the
SUBCOMMITTEE ON RESOURCE PROTECTION

of the
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

Washington, D. C.
July 20, 1977

Mr. Chairman, Members of the Subcommittee:

I appreciate the opportunity to present this written statement for the record of the hearings. My name is Sydney Anderson and I am Chairman of the Department of Mammals at the American Museum of Natural History in New York City. I am the immediate past president of the American Society of Mammalogists and a member of its Committee on Legislation and Regulations. The Society has 3,900 members, mostly professional biologists with diverse interest -- wildlife managers, physiologists, epidemiologists, zoo curators, ecologists, systematists, and zoogeographers. We have committees on Marine Mammals, and on the Conservation of Land Mammals and we wholeheartedly endorse the basic intent of the Endangered Species Act. We are also aware of certain problems with the Act.

The urgent need that gives rise to this statement relates not only to the Act directly, but more important, to increasing number of acts that require permits for scientific work. Scientists now have formidable problems in obtaining permits. These problems reduce our ability to provide and improve upon the "best available scientific data" required by various acts.

Our Society proposes the following set of "Recommended guidelines for scientific collecting permits for flora and fauna". Procedures that do not meet these guidelines are, in our judgement, counterproductive. In some cases regulations work against the basic goals of the legislation

that led to them. We therefore respectfully request that your committee ask the implementing agencies to put into practice procedures that will conform to these recommended guidelines and thus encourage and expedite scientific work rather than inhibit or prevent it.

It is the intent of the American Society of Mammalogists to present these guidelines to every federal, state, and provincial agency that grants permits, in the hope that the agencies will examine their own procedures and improve them. We stand ready to help them do this. The need for each specific guideline has arisen from recent experience. These are not hypothetical problems. Our colleagues in the American Ornithologists' Union and the American Association of Ichthyologists and Herpetologists also encounter difficulties. We are not interested in merely recounting past failures, we are interested in improving future performance.

It is our intent, therefore, to continue to study this problem, to document future difficulties, and to propose solutions. We would welcome invitations to testify at future hearings of your committee on any proposed legislation or review of existing legislation that includes provisions for scientific permits.

Recommended Guidelines: Scientific Permits for Flora and Fauna

(for collecting, transport, import, possession, etc.)

Draft of 20 July 1977, for consideration of Senate Subcommittee

1. **Policy:** The government concerned should indicate its positive intent to encourage and implement scientific studies of its flora and fauna, either in legislation or in statements of a responsible agency. Scientific work produces knowledge that is useful in management or protection of resources and in broader understanding and appreciation of plants and animals and how they relate to their environments. Both careful formulation and expeditious handling of permit procedures are needed in order to encourage and implement scientific studies.
2. **Competence:** Some evidence of scientific competence should be required of applicants, whether individuals or institutions. Identification of academic or institutional position should be adequate in many cases. Letters of reference or recommendations from established scientists should serve in other instances. An age limit seems superfluous if this requirement is met.
3. **Students:** There should be simple provisions for students enrolled in courses that provide training in scientific methods such as collecting and preparing specimens or monitoring environmental changes, as well as for students in their early scientific efforts. Provisions for students may best be handled through institutional permits.
4. **Institutional Permits:** As an alternative to individual permits, permits should be issued to institutions or agencies involved in research or education, such as universities, museums, and state or federal agencies. This can simplify the paperwork and provide greater flexibility. Identification should be carried by any person operating under an institutional permit and the names and activities of such persons should be included in the next annual report by the institution. The scientific collecting activities of governmental agencies, including state fish and wildlife agencies, should be conducted under the same rules and procedures that other scientists follow.
5. **Consultants:** Separate (non-scientific) permits and reports should be required when collecting is done by a person or firm providing consultation for profit or by any scientist acting temporarily in that capacity, unless the work uses scientific methods and the specimens, data, and results are publicly available (as opposed to being held privately or for proprietary use only).

6. Other Activities: Non-scientific practices should be covered by means other than scientific permits. These include bird-banding by non-scientists, taxidermy, control of animals that are a nuisance, and holding animals in captivity for other than scientific use.
7. Salvage Permits: Reasonably broad provisions should be granted when requested for the salvage of specimens such as road-killed individuals of game species, rare or endangered species, or other species that may not be taken or killed under other provisions of the permit. A special and immediate report should be required in the case of any endangered species. Alert field naturalists often have the opportunity to salvage specimens from road-kills, individuals killed in natural accidents, or incidental to other collecting activities. They would be willing to do the extra work required to preserve scientifically valuable material not directly related to their own work if this were encouraged by permit conditions. Federal permits for birds take this into account and it would be appropriate for states to do this for mammals and other groups as well.
8. Advance Information: A general indication of groups of organisms, approximate numbers, methods, and areas of work should be required. Advance notice as to precisely what species are to be collected, the numbers of specimens, etc., should not be required, because in many studies these can not be known in advance.
9. Objectives of Work: A brief statement of scientific objectives should be required for information only, not so judgement can be passed on the scientific importance of the work. It should be understood that some objectives may be very broad, as in a general faunal survey.
10. Final Report: A report is in order at the end of the permit period or annually, but this report should not be more involved than needed to inform the issuing agency as to the general nature of the work done. Detailed lists of every specimen (taken or preserved) with scientific names to species, precise localities, and other data for which the agency has no real use are not only wasteful exercises, but are impossible in many cases. The place of deposition of any specimens preserved should be part of the information provided. The general report should enable anyone, in the issuing agency or elsewhere, who really needs more detailed information to contact the scientist and request the information.
11. Required Deposition of Specimens: Scientists have an obligation to make efficient use of the resources represented by specimens. In the case of vertebrates, this generally means that in addition to the careful preparation and adequate documentation needed for a specific study, eventual deposition of voucher specimens and those preparations that would be especially useful to other investigators should be required in a collection that meets the minimum standards of the profession for maintenance and assurance of

public availability. Specimens of a type already common in collections or unsuitable for further study would not normally be required.

12. Time Period and Renewal: A period of one year is usually a reasonable permit period, but provisions should be made for the simplest possible renewal procedures for those who are likely to be continuing work. The prior years' reporting and renewal procedures should be combined. Longer time periods reduce paperwork for both scientist and issuing agency and should be used when possible.
13. Fee: Any fee should be minimal and related to the costs of keeping the simple records needed. The fee should be the same for residents and non-residents. The rationale here is that the non-resident scientist is contributing to the welfare of the state, province, nation or other political division.
14. When Should Permits be Required? Permits for scientific collecting or other scientific work should be required only when the permit will result in a demonstrated net social benefit. For example, if barn rats are not protected by law, no permit should be required to collect them. It is not reasonable to allow anyone in a state to kill a rattlesnake or a pocket gopher and to require a scientist to have a permit to pick it up and prepare it as a specimen.
15. Information for Collectors: Information should be provided (by the agency issuing the permit) on regulations, any special public relations problems, methods of collection recommended, trespass, advisable behavior in the field, danger of diseased animals, and any other relevant matters that will help the collector operate effectively, within the law and in ways that will not complicate the work of the issuing agency or raise problems for other collectors.
16. Information for Local Agents: Conservation officers should be informed by the issuing agency of permits granted. It should not be necessary for every investigator to inform each local game warden every time field work is done. This can be quite wasteful of the time of both the investigator and the warden. General awareness and occasional communication when this seems needed should be adequate. If collecting activity is of a nature likely to attract public attention and potentially result in complaints or reports to a local agent, it is a good idea to notify the agent in advance so that he can explain what is going on and not waste time investigating a legal activity.
17. Annual Summaries of Scientific Work: Agencies that issue scientific permits should prepare concise annual summaries of these permits and work done thereunder and copies should be sent to all permit holders. This would expedite communication between workers.

18. Timeliness: A permit issued too late is a permit denied. It should be possible and legal to issue a permit within hours or days, rather than weeks or months. The need for, or the possibility of, field work may arise suddenly and may exist in some cases for only a short time. We should expect equally prompt responses to requests for information about regulatory matters.

(1)

July 24/1977

Senator John Culver
~~Sub~~ Subcommittee on Environment &
 Public Works
 Dirksen Senate Office Bldg
 Washington, D.C.

Dear Sir:

While I did ^{not} get the opportunity to testify at your hearings on July 11-22 regarding TVA's Tellico Project, I would like to offer the following comments.

I am a dairy farmer in Greene County, Tenn. I have had land condemned by TVA for one of its projects & I can say that Mrs Ritchie's & Mr. Atford Davis' ^{testimony} ~~comment~~ represents a common problem faced by any landowner when TVA wants his lands. It is ~~isn't~~ disturbing that TVA has the power to condemn land for any purpose it so desires, including resale & leasing. Of course, the TVA Act was not ~~on~~ on trial in this case but had ^{TVA} not the broad powers it has, this conflict with the Endangered

(2)

Species Act probably wouldn't be.

TVA claims it needs the hydro-electric power from Tellico Dam, yet it ~~it has~~ shut down two projects which ^{together} could produce as much ~~as~~, if not more, power than Tellico.

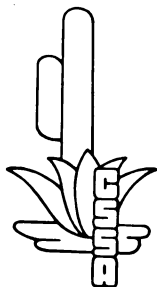
As to flood control, the 126 000 acre-feet from Tellico Lake will add only 1.5% to the already available storage capacity in lakes upstream from Chattanooga. ~~But~~ Furthermore, in 1971 TVA raised the minimum drawdown levels for eight tributary reservoirs, eliminating 1, 713, 000 acre-feet of flood storage space. Additionally TVA encouraged flood plain development on 2600 acres on Nickajack Lake. Floods ensued in 1973, as Mr. Seiber showed you in his photograph. Yet, ~~despite~~ despite its poor judgement in raising drawdown levels ~~lands~~ & flood plain zoning, TVA blames the 1973 Chattanooga flood damage on the absence of Tellico Lake.

~~There~~ The TVA Act has needed

(3)

redirection for some time & the Tellico
Project focuses on that need.

Thank you
Daniel E. Burgner
Daniel E. Burgner
Rt. 10 Box 183A
Greeneville, Tenn. 37743
phone 615-639-2332



Re: Endangered Species Oversight

THE CACTUS & SUCCULENT SOCIETY OF AMERICA

(INCORPORATED)

Senator John Culver
Senate Office Building
Washington, D.C.

Gary Lyons, Chairman, C.S.S.A.
Conservation Committee

2785½ N. Glenrose Ave.

Altadena, Ca. 91001

July 15, 1977

Dear Senator Culver:

For the past two months, rumors circulated on the west coast about Endangered Species Oversight Hearings to be held in Washington this July. Your committee is one mentioned in this regard and so I am addressing my comments to you. It would be most appreciated if these comments could be addressed by you, during these hearings, to officials from the Fish and Wildlife Service.

My comments are as follows:

1). For the past several years the C.S.S.A. struggled for reasonable conservation laws that would protect in situ endangered and threatened species of cacti and other succulents in the United States and other countries. We saw the passage of the Endangered Species Act of 1973 and the ratification of the Trade Convention as milestones in plant conservation and hoped that abusive collecting would be stopped. But we

are disappointed to see that both documents will be used more as trade monitoring devices than for protecting the habitats of plant species that are truly endangered. We are aware that neither document allows for habitat protection except for a section in the U.S. Act permitting land acquisition. The experience of the TVA Dam vs. the Snail Darter suggests that this section will never be enforced except in the rare cases where industry and land developers have no use for such habitats. Many of the cacti grow in areas of the southwest that are of little use to anyone. Many of these habitats are in close proximity to national parks and monuments and it seems possible that significant portions of these habitats could be annexed to these parks and monuments.

2) The Smithsonian Report on endangered and threatened plant species contained an observation that the U.S. Endangered Species Act was deficient in that it did not prohibit "taking" of plants. We are highly critical of this deficiency in the Act and much of the bureaucratic folderol to emerge over enforcement of the Act can be traced to this deficiency. I do understand that the Fish and Wildlife Service has the opinion that laws can be promulgated to prohibit taking of endangered and threatened wildlife and that such protection cannot be extended to plants. We would hope that in your Oversight Hearings this problem of direct habitat protection will be thoroughly explored and, if necessary, the Act itself amended to afford the strongest possible habitat protection by the federal government and provide incentives for the greatest degree of cooperative action by state and local governments.

3) The State of California recently passed a native plant law pro-

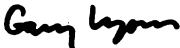
tecting endangered species in that state and it must be noted that seeds were specifically exempted from that law. Therefore collecting of seed from plants in the wild will not be regulated by any state agency. Nearly all succulent plants produce seeds far beyond their need to maintain population stability and/or expansion. Relatively small populations of plants can produce seeds by the million and only a few will germinate to continue the species. Therefore, I feel that the inclusion of seed under "prohibited Acts" of the U.S. Endangered Species Act, is not good conservation. Seed-collecting and the growing of such seed in vast quantity provide a commercial source of a given species far in excess of that provided by the natural population. Seed-grown plants are more salable than field-collected ones, thus reducing demand for field-collected plants. Both the Act and the Trade Convention have provisions for regulation of seed and the term "seed" should be deleted from both documents. If research indicates that seed collection further endangers an already endangered species, then special regulations can be written for each case. It would not have to be done very often. Statements in the June 24, 1977 Federal Register: General Provisions, General Permit Procedures and Endangered and Threatened Wildlife and Plants, suggests that the Fish and Wildlife Service supports most of these views on seeds.

4) The standard application form (Form 3-200) provided by the Fish and Wildlife Services should be replaced by application forms tailored specifically to permit requests for import-export of plant taxa listed in the Trade Convention appendices and those listed in the U.S. law. There should be special forms for shipment of field-collected plants, for seed-grown plants, and for non-commercial uses. In this way, the burden

will not be upon the applicant to literally construct his or her own version of an application form based upon their own interpretation of the permit regulations, in order to satisfy the FWS permit requirements. This will go a long way toward reducing the paperwork burden for all.

5) A few years ago, a London newspaper quoted an English botanist as saying that all cacti were endangered. As far as I can tell, it was an observation like this, light years from the truth, that resulted in the inclusion of all cactaceae; i.e., all 3,000 or so species of the cactus family, in the Trade Convention. Unquestionably, there are many species that are endangered and the listing of entire families in the Convention provided an easy out to avoid putting expertise, money, and lots of much-needed fieldwork into determining just which cacti were endangered and which were not. Perhaps 2-3% of the cactus species are endangered, many of them from Mexico where collecting pressure is great, but certainly not 3,000 species. Such an inclusion as this resulted in placing a great burden upon trade in seed-grown cacti, for the Convention texts also fail to distinguish between species growing in the wild and those growing in nurseries and backyards. The U.S. delegation to the Convention should present proposals to deregulate seed-grown cacti and other succulents, and to begin a systematic survey to find out which species of succulent plants should be listed in the Convention and which should not.

Sincerely yours,



Gary Lyons, Chairman, C.S.S.A. Conservation Committee

Carnegie Museum of Natural History

Craig C. Black, Director

22 July 1977

Senator John Culver, Chairman
Subcommittee on Resource Protection
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Culver:

In regard to the oversight hearings on the Endangered Species Act that your Subcommittee held this week, I should like to enter the following experience into the record:

I am a professional ornithologist, Associate Curator of Birds at Carnegie Museum of Natural History, a Fellow of the American Ornithologists' Union, and Chairman of the AOU's Committee on Collections. My research includes the study of bird anatomy and taxonomy.

Approximately three years ago I began to arrange with Australian ornithologists and authorities for the Australian permits required to collect and export, as a loan, an anatomical specimen of Atrichornis, the Noisy Scrub Bird. This species is listed as Endangered. It is under intensive study by the Australian C.S.I.R.O., in an effort to save it from extinction. The Australian authorities, who are protective in the extreme of their fauna and flora, thought my proposal important enough for the survival of the species to issue permits for the collecting of a single specimen. The specimen was then to be exported to the U.S. as a loan, for a cooperative study by a group of American avian anatomists. There is no one in Australia who can conduct such a study.

I feel there was no doubt that the import^{of} of this specimen into the U.S. for study was important, and has been recognized as such by the Australian authorities (the country of origin).

Once the Australian permits were obtained, I applied to the U.S. Fish & Wildlife Service for an import permit. My application was made in July, 1976, and included all the necessary information and supporting documents--particularly a letter from an Australian Ministry stating that the study was important to the future management of the species in the wild.

In August, the USF&WS Permit Office asked me to reapply, as they did not want to issue Endangered Species permits to individuals. Accordingly, I filled out another form, as Carnegie Museum of Natural History, and our Director signed it. In December I received the permit, PRT 2-315--approximately 4-1/2 months after my original application.

When the permit arrived I found it filled with conditions, referenced to various 50 CFR regulations, copies of which were not all included. With almost every exchange of letters with the Permit Office, they have sent me pounds of copies of regulations, mostly not pertaining to the matter at hand. Yet when I needed certain regulations so I could be sure of compliance, I did not get them. Sure that a request for copies of the appropriate regulations would

be met with additional delay, I bypassed the Permit Office and called the local Customs office in Pittsburgh for the information. Unfortunately it was now the Christmas season, and the regulations I was asking for were "exotic" (not in the everyday files) so it took almost a month for the Customs men to find, and read to me over the phone, some of the regulations not originally supplied by the Permit Office.

In January I wrote Australia with copies of everything required for U.S. import, and asked that the specimen be sent. It was, promptly, but then I had a problem with a broker on the West Coast (where the package arrived). Because this was an Endangered Species, the Carnegie Museum permit PRI 6-61-I, Exception to Designated Port of Entry, could not be used--to bring the package in through the Port of Pittsburgh, where we have a local broker. Thus I had to pick a name out of a hat for a West Coast broker, he required a complex power of attorney (which took several weeks to arrange), and charged us about \$75 to handle and forward the (very small) package. When the specimen arrived at the Museum in March I made the various reports of importation as specified in the permit, and thought I could relax until it was time to return the bird in December. As it turned out, I was overly optimistic.

In April I received a letter from the Permit Office informing me (almost apologetically) that the new Convention on International Trade in Endangered Species of Wild Fauna and Flora would be implemented in May. This meant I had to apply, again, for another permit to re-export the specimen. I did so, within a few days. The permit PRI 2-794 was received in late June--two months, for what should have been a rubber-stamp procedure.

After the specimen arrived in March, several other colleagues heard about it and asked to be allowed to work on it. As their studies would add appreciably to the overall purpose of collecting the bird, I agreed--but had to write to Australia for written permission for the additional dissection. This was forthcoming promptly. The U.S. permit specifies where the specimen may be while in the U.S. (Pittsburgh and New York City) hence it was necessary to write the Permit Office for an amendment, allowing it to be sent to Washington (to the National Museum of Natural History) and to Lawrence, Kansas (to the Museum of Natural History, University of Kansas). I asked for this simple amendment in April, but it has not yet been acted upon--now, over three months' delay. My primary worry at this point is that the amendment will not arrive in time for the entire study to be completed by the date required for the specimen to be re-exported. Whereupon I shall have to apply for another amendment, to postpone the re-export for a few months.

All of this red tape, delay, and aggravation has been over one little bird--whose study had already been approved by the authorities in the country of origin. More important, however, is the fact that my experience has been typical (according to conversations with colleagues), or perhaps even more trouble-free than some. A scientist now has to be grimly determined to study an Endangered Species. Yet these are the species most deserving of study. Inevitably, however, they will be neglected because it isn't worth the time and trouble to cope with the regulatory hassle.

These new regulations have a serious stifling effect on legitimate research. I can only hope that they are doing some good in reducing the illegal bird traffic.

I might also add that, through my Chairmanship of the AOU Collections Committee, I have received a deluge of complaints from fellow scientists in regard to international loans of museum specimens. Although Endangered Species are seldom involved, the entire procedure for a loan to be sent across an international boundry has become unbelievably complex. And, as packages that used to pass through Customs with no more than routine attention are now being held up for "special" inspection, the specimens themselves are becoming endangered in the hands of Customs officials who do not know how to handle them properly. Thus scientific investigation, totally unrelated to Endangered Species, is also being stifled. Certainly, in the future, I shall try to conduct my research on specimens that are available within the U.S., even if a study would be much more significant if I could include material borrowed from the British Museum or elsewhere overseas.

I am, of course, whole-heartedly in sympathy with the intent of the new laws controlling trade in birds, Endangered or otherwise. But in their efforts to close all the loopholes to the illicit trade, the USFWS regulations, and the slow-moving staff in the Permit Office have made it almost impossible for legitimate scientists to do their work. This situation must be remedied.

I am delighted to learn of your Oversight Hearings, and hope that some constructive changes will come from them.

Sincerely yours,



Mary H. Clench, Ph. D.
Associate Curator of Birds

Kent C. Newland
P.O. Box 86
Superior, Arizona
85273

July 12, 1977

Senator John Culver
Chairman, U.S. Senate
Subcommittee on Resource
Protection
Washington, D.C. 20510

Dear Senator Culver,

The continuing vigilance of the U.S. Senate over the Endangered Species Act of 1973 is to be appreciated. ~~Like~~ the July 19, 1977 U.S. Senate Oversight Hearings on the Endangered Species Act will seek to clarify the intents and programs of the Act.

Please accept the following comment for the written record of the July 19, 1977 U.S. Senate Oversight Hearings on the Endangered Species Act.

I am Kent C. Newland, Vice-President and Conservation Chairman of the Central Arizona Cactus and Succulent Society. For the past three years, I have been involved with the endangered plant species situation here in Arizona .

Arizona has a strict and effective native plant law. The Arizona native plant law was passed in 1928 and upgraded in the enforcement section in 1967. The law is administered by the Arizona Commission of Agriculture and Horticulture. A copy of the law is enclosed herewith. In 1976, after the Smithsonian's ~~Report~~ Report on the Endangered and Threatened Plant Species of the United States became available, I became aware of the fact that the Arizona ~~native~~ native plant law gave protection to only 34 plant species of the 122 then considered endangered or threatened plant species here in Arizona.

In an attempt to bring this to the attention of the Arizona legislature with which the authority rest to amend the Arizona native plant law, I submitted written testimony on February 24, 1976 on Arizona's endangered and threatened plant species to the Arizona Senate Committee on Natural Resources. The reaction by the committee was a mixed one with such candid and humorous comments such as " We can't pronounce the scientific names of these plants much less pass laws to protect them." but most of the Arizona senators on the committee agreed that the Arizona native plant law should be amended to give more protection to Arizona's endangered and threatened plant species. In the way of compromise, the Arizona native plant law was amended by the 1976 Arizona legislature to give most protected status to all Pediocactus and Sclerocactus species and Agave arizonica.

I also strongly emphasized in my testimony before the Arizona Senate Committee on Natural Resources, " On a continuing basis, I believe the state of Arizona should set up a Commission of Arizona Endangered and Threatened Plants possibly in cooperation with the Bureau of Land Management and other federal agencies. This commission would constantly evaluate and protect the rare and endangered plants of Arizona. It really comes down to the federal and state government making a real effort to protect and preserve the habitat of these endangered and threatened plants."

I often wonder what the situation in Arizona would be like if there was no native plant law to conserve its rich flora. The Arizona native plant law is far sighted enough to protect the saguaro, a giant columnar cactus of the Sonoran desert of Arizona, which is common now but might not be in the future if the law was not enforced on the taking of young saguaros off desert lands which hopefully be the giants of the future. The state of Arizona is very concerned about the future of its rich and unique flora.

The Arizona native plant law should serve as model law to other state that are also concerned about their floras. Every state has its unique situation in regards to its native plants and their native plant laws should be legislated accordingly.

With the stronger enforcement of the native plant law here in Arizona, this leads to the unscrupulous commercial cactus collectors to start "mining" the Mojave desert of California and Nevada for desert plants. California and Nevada are enacting or have now enacted native plant laws patterned after the Arizona native plant law.

Other developments in the state of Arizona in the past year in regard to Arizona's endangered plant species has been a survey by the BLM of endangered plant species on their land and formation of the Arizona Native Plant Society dedicated to the knowledge and conservation of plants indigenous to Arizona.

The state of Arizona has yet to make provision for a cooperative agreement with the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973 to protect Arizona's endangered plants. All of these aforementioned activities on Arizona's endangered plants except for the BLM survey has come from the "grass roots" level without federal encouragement. All of this shows, using Arizona as an example, that every state has the people and ideas for the native plant situation and the U.S. Fish and Wildlife Service could make more of an effort to utilize them under the Endangered Species Act.

Section 6 of the Endangered Species Act dealing with cooperative agreement with the states has yet to be amended to give equal consideration to both U.S. endangered species of plants and animals. I urge the Congress, to amend Section 6 to give equal consideration in writing to both U.S. endangered species of plants and animals.

Assuming U.S. House of Representatives and Senate bills on Section 6 of the Act are past to authorize grant-in-aid funds for the states under cooperative agreement under the Act, what U.S. endangered plant species will they "officially" be authorized to protect? Granted, the Smithsonian report on U.S. endangered flora was viewed as a "snapshot" on the situation and the U.S. Fish and Wildlife Service took the Smithsonian's listing under advisement. With the proposed listing by Fish and Wildlife of approximately 1700 candidate U.S. endangered plant species only 14 of these U.S. endangered plant species have thus far made it through the rigors of the federal bureaucracy to hopefully become officially listed. I realize the impact of the official listing of an endangered species is major but 14 plant species out of 1700 U.S. endangered plant species to be listed, must be termed neglect at high levels. I am just afraid with this slowness by the U.S. Fish and Wildlife Service on listing U.S. endangered plant species and with only 3 FWS botanists working away in Washington, D.C. and FWS botanists in each of Fish and Wildlife's seven regional offices, that many of the U.S. endangered plant species that was the intent of the Act to protect will become extinct with this continued foot dragging by Fish and Wildlife.

The official excuse for this inaction will probably be "We are sorry we are to late for this plant species, lets move on and find another nearly extinct, if not extinct U.S. plant species." Does the Endangered Species Act of 1973 become a monument to extinct U.S. plant species, the official listing and obituary column and the states merely undertakers of extinct plant species? I urge prompt action by the Congress to build a fire under the officials at Fish and Wildlife, so to speak, to get more U.S. endangered plant species officially listed and design programs for their continued existence.

America has been blest with many wonderful things among them @: unique plant and animal heritage and democracy of elected representatives of the American people. It isto you the elected representatives of the American people that fathered the Endangered Species Act of 1973, that this nation and its people now turn for your continued help to conserve America's unique and endangered plant and animal heritage.

Sincerely yours
Kent C. Newland
 Kent C. Newland
 Vice President &
 Conservation Chairman
 Central Arizona Cactus
 & Succulent Society



**Arizona Commission of
Agriculture and Horticulture**

1608 WEST ADAMS • PHOENIX, ARIZONA 85007 • (602) 271-4373



ARIZONA NATIVE PLANT LAW

Arizona Revised Statutes, Chapter 7

ARTICLE 1. PROTECTION

Sec. 3-901. Protected group of plants; botanical names govern; power to add or remove plants

- A. The botanical names of the plants referred to in this article shall in all cases govern in the interpretation of this article. Protected native plants shall be any plant or part thereof, except its fruit, named in the protected group which is growing wild on state land or public land or on privately owned land without being propagated or cultivated by human beings and the dead plants or parts thereof of those plants which are named in subsection C, paragraph 4, of this section.
- B. The following shall constitute certain protected native plants that are prohibited from collection except for scientific or educational purposes under permit from the commission of agriculture and horticulture: *Washingtonia filifera* (fan palm), *lysiloma thornberi* (ornamental tree), *bursera fagaroides* (elephant tree), *cereus schottii* (senita or "old one"), *cereus thurberi* (organ pipe cactus), *oumeia papyracantha*, *oumeia peeblesiana*, *neoevansia diguetii* (dahlia cactus), *pediocactus paradinei*, all *pediocactus* species, all *sclerocactus* species and all *agave arizonica*.
- C. The following shall constitute the protected group of plants:
 1. All species of the following families: *liliaceae* (lily family), *amaryllidaceae* (amaryllis family), *orchidaceae* (orchid family), *crassulaceae* (orpine family), *cactaceae* (cactus family).
 2. All species of the following genera: *aquilegia* (columbine), *lobelia* (lobelia), *dodecatheon* (shooting star), *primula* (primrose), *fouquieria* (ocotillo).
 3. The following species: *atriplex hymenelytra* (desert holly), *cercis occidentalis* (western redbud), *dalea spinosa* (smoke tree), *holacantha emoryi* (crucifixion thorn), *fremontia californica* (flannel bush), *pinus aristata* (bristlecone pine), *rhus kearneyi* (kearney sumac), *sapium biloculare* (Mexican jumping bean) and *sabastiana pavoniana* (Mexican jumping bean).

NASDA MEMBER
NATIONAL ASSOCIATION OF
STATE DEPARTMENTS
OF AGRICULTURE

96-141 1116

AGRICULTURE
OUR NATION'S
FOUNDATION

ARIZONA NATIVE PLANT LAW

4. The following species of live or dead plants or parts thereof shall include: *prosopis juliflora* (common or honey mesquite), *prosopis pubescens* (screwbean mesquite), *cercidium microphyllum* (little leaf palo verde), *cercidium floridum* (blue palo verde), *parkinsonia aculeata* (jerusalem thorn, long leaf palo verde), *olneya tesota* (ironwood tree).
- D. The Arizona commission of agriculture and horticulture may, after public hearing, add or remove any native plant to or from the protected group. A public hearing on native plants shall be held at least every twelve months.

Sec. 3-902. Native plant permits and tags; fees; regulatory powers of commission

- A. The commission of agriculture and horticulture shall issue permits, wood receipts, tags and seals for a fee as prescribed by the commission, which fee shall not be less than one dollar per plant for all native plants except *cereus giganteus* (saguaro) and not less than two dollars per plant for each *cereus giganteus* (saguaro), except for trees, live or dead, mesquite, palo verde or ironwood species of trees cut or removed for wood, as provided in subsection C, which fee shall not be less than one dollar per cord, to persons who take protected native plants from their original growing sites. The permit shall specify the species of protected native plants which may be taken, the area from which plants may be taken and the manner in which plants may be taken. No person, except as provided in this article, shall take or transport or have in his possession any protected native plant from its original growing site in the state of Arizona unless at the time of taking he has a valid permit therefor on his person, a valid wood receipt where required, attaches the tags and seals as may be required to the native plants at the time of taking, and exhibits the permit, wood receipt and tags and seals upon request for inspection by any duly authorized agent of the Arizona commission of agriculture and horticulture or by any peace officer as provided for in this chapter. No wood receipt or tag and seal is valid unless it is issued with a valid permit and such permit bears the tag number or wood receipt on its face.
- B. With each permit authorizing the taking, transporting or possessing of protected native plants, except trees cut or removed for wood as provided in subsection C, the commission shall provide such tags and seals as the commission may prescribe, which the permittee or his agent shall attach to the protected native plants at the time of taking and before transporting and in such manner as prescribed by the commission. After any protected native plant has been legally taken and tagged as provided by this article, it shall be unlawful to remove such tag or seal until the plant has been transplanted into its ultimate site for landscaping or beautification purposes. Removal of the tag or seal from the plant shall be only by an agent of the commission or by the ultimate owner of the plant, who shall

ARIZONA NATIVE PLANT LAW

retain such tag or seal as proof of ownership. No permit or tag or seal as such is transferable by the permittee or his agent, nor shall it be used by anyone except that person to whom such permit or tag or seal was issued, nor shall it be used for more native plants than indicated thereon and no refunds shall be made for the purchase thereof. Any permittee shall be responsible for the acts of any other person or persons acting under any authority expressed or implied of the permittee.

- C. With each permit authorizing the taking, transporting or possessing of live or dead mesquite, palo verde or ironwood species of trees which are cut or removed for wood, the commission of agriculture and horticulture shall provide such wood receipts as the commission may prescribe, which must be in the possession of the person taking, transporting or possessing the tree. No permit or wood receipt as such is transferable by the permittee or his agent, nor shall it be used by anyone other than the person to whom such permit or wood receipt was issued, except that the wood receipt shall be transferred by the permittee to the purchaser of the cord of wood covered by the receipt as proof of ownership.
- D. A person in possession of a valid permit for the removal of dead plants or wood issued by the United States department of agriculture for use on lands under the administration of the United States forest service shall be exempt from the required permit as defined in section 3-904.
- E. The commission of agriculture and horticulture may make necessary rules and regulations not in conflict with this chapter for the enforcement of its provisions.
- F. The commission of agriculture and horticulture is empowered and directed to enter in or upon any premises or other place, train, vehicle or other means of transportation within or entering the state, suspected of containing or having present therein or thereon protected native plants in violation of this article.
- G. When any power or authority is given by any provision of this article to any person, it may be exercised by any deputy, inspector or agent duly authorized by such person. Any person in whom the enforcement of any provision of this article is vested has the power of a peace officer as to such enforcement, which shall include state, federal or Indian agencies with which cooperative agreements have been made by the commission to enforce any provisions of this article.

Sec. 3-903. Board of supervisors; power to preserve plants

The board of supervisors of each county is authorized to adopt and enforce ordinances not in conflict with law for the preservation of protected groups of plants.

ARIZONA NATIVE PLANT LAWSec. 3-904. Taking of plants; permit; tag fees; importation; exceptions

- A. Except as provided in this article, it shall be unlawful for any person to destroy, dig up, mutilate or take any living plant, or the living or dead parts of any trees, except fruit, of the protected group from state land or public land without obtaining a permit and any required wood receipts or tags and seals from the Arizona commission of agriculture and horticulture, or from private land without obtaining written permission from the landowner, and a permit and any required wood receipts or tags and seals from the commission of agriculture and horticulture. It shall be unlawful for any person to falsify any paper or document issued to give permission for any person to take native plants of the protected group or to take more native plants than authorized by the permit or to take native plants from areas other than those authorized by the permit.
- B. The commission of agriculture and horticulture may give written permission for a person or a scientific or educational institution to take a definite number of specified plants in the protected group from areas specified by the commission for scientific or educational purposes. In addition the commission may give written permission for a person to take specific plants or parts of plants in the protected group from areas specified by the commission for manufacturing or processing purposes or for the cutting or removal of wood and assess reasonable and proper fees for such taking of the plants or parts thereof. It shall be unlawful, for any person or scientific or educational institution to misuse a permit in any manner.
- C. Permits issued for the removal of native plants including live or dead mesquite, palo verde or ironwood species of trees, will be for a stated period of time to allow the permittee to remove the specific amount of plants or wood stated in the permit, or that period of time stated by the landowner as part of such landowner's permission, whichever is shorter. Such permit will expire on the termination date shown on such permit.
- D. Any permit provided by subsections A and B shall expire when the tags and seals issued therewith have been attached to the plants covered by such permit and such plants are no longer in the possession of the permittee. Any permit shall be valid until expiration or for one year from date of issuance, whichever occurs first, except that any permit and the tags and seals or wood receipts issued therewith shall be null and void when the land on which the plants are growing, as described in the permit, changes ownership, unless the new owner certifies in writing that the permittee may continue taking such plants as specified on the permit.
- E. Nothing in this article shall be construed to prevent the clearing of land, cleaning or removal of protected native plants from a canal, lateral ditch, survey line, building site, or road or other right-of-way by the owner of the land or his agent where

ARIZONA NATIVE PLANT LAW

such protected native plants are not to be transported from the land or offered for sale and provided the commission is given at least ten days notice. Use of dead wood for branding fires or at permissible camping or cooking sites, for camping or cooking fires, is exempt from this section.

- F. Nothing in this article shall be construed to prohibit any person from cutting, removing, transporting or possessing any dead mesquite, palo verde or ironwood in amounts less than one cord in quantity from land owned or leased by such person, other than state-owned land or other public land, or from land, the owner of which has given consent to such person to cut, remove, transport or use such wood.
- G. The commission of agriculture and horticulture shall collect fees for the issuance of permits, tags and seals and wood receipts under this article, except for scientific and educational purposes, or for a landowner moving protected plants from one of his properties to another, providing that no such plants are to be offered for sale.
- H. Any protected native plant found without a valid tag and seal securely and properly affixed thereto, or any mesquite, ironwood or palo verde wood found in the possession of a person without a valid wood receipt, may be confiscated as evidence of a violation.

Sec. 3-905. Shipment of plants; exhibition of permit and certificate of inspection to carrier

No person or common carrier shall transport a plant, or any part thereof, belonging to the protected group, nor receive or possess a protected native plant for transportation within or without the state, except for manufactured wood articles, unless the person offering the plant for shipment exhibits to the person or common carrier a valid written permit for the transportation of the plant or part thereof, and has securely and properly attached thereto a valid native plant tag and seal. If for transport without the state, the plant shall also bear a certificate of inspection by the commission. All protected native plant species or varieties, when not grown in Arizona and imported into this state, shall be declared at an Arizona agricultural inspection station or a district office of the commission, and proceed to destination under quarantine orders issued by agents of the commission employed at such station or district office.

Sec. 3-906. Arrests without warrant; confiscation of plants

A peace officer or an officer or employee of the commission of agriculture and horticulture may, in the enforcement of this article, make arrests without warrant for a violation of this article which he may witness, and may confiscate plants or parts thereof belonging to the protected group when unlawfully taken, transported, possessed, sold or otherwise in violation of this article.

ARIZONA NATIVE PLANT LAWSec. 3-907. Violations; penalties

- A. A person violating any provision of this article is guilty of a misdemeanor punishable by a fine of not less than one hundred dollars nor more than one thousand dollars for each violation or by imprisonment in the county jail not to exceed one year, or both, and each violation constitutes a separate offense.
- B. Upon conviction of a violation of this article, all permits issued to the person convicted shall be revoked and the permittee shall be required to surrender any unused tags and seals or wood receipts to the commission and no new or additional permits shall be issued to the permittee for a period of ninety days from date of conviction.


Sec. 3-908. Arizona commission of agriculture and horticulture fund

- A. All fees or monies collected under the provisions of this article shall be deposited with the state treasurer at the end of each month, who shall place it in a special fund which is created to be known as the Arizona commission of agriculture and horticulture fund.
- B. Ninety per cent of all money deposited with the state treasurer shall constitute a separate and permanent fund for the use of the Arizona commission of agriculture and horticulture in the enforcement of the provisions of this chapter, and ten per cent shall be credited to the general fund of the state.

Approved by the Governor - June 27, 1976

Filed in the office of the Secretary of State - June 28, 1976

Effective - September 28, 1976


 L. D. McCorkindale, Director and
 State Entomologist

96-141 1121

LDM:db

STATEMENT OF
BRIGADIER GENERAL DRAKE WILSON
DEPUTY DIRECTOR OF CIVIL WORKS
BEFORE THE SUBCOMMITTEE ON RESOURCE PROTECTION
OF THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
REGARDING THE
ENDANGERED SPECIES ACT OF 1973
22 JULY 1977

Good morning, Mr. Chairman, members of the committee. I am pleased to appear here today to present testimony on the Endangered Species Act of 1973.

At the outset of my statement I would like to emphasize that the Army Corps of Engineers conducts many military and civil works activities which modify the environment. As a result we have had significant experience with the Endangered Species Act of 1973. In my statement I will examine some of the specific situations in which the Corps has been implementing the Act.

The Corps of Engineers endorses the concepts of the Act and its overall purpose. The Act has aided the Corps in the identification of several requirements critical to the survival of many species of wildlife. Since the Act was passed, the Corps has modified or changed many activities and construction procedures to preclude encroachment and actions that may jeopardize benthic organisms, migratory habits of fish and other aquatic organisms, and breeding and resting sites for birds. The Corps of Engineers' scientists and contractors have made significant contributions to the life history, ecology, distribution and management of several species of endangered wildlife, for example:

The Indiana and Gray bats at Meramec Park Lake, Missouri,

The Leopard darter at Lukfata Lake, Oklahoma, and

The Higgins' eye pearly mussel at several projects in Wisconsin and Missouri.

We have also encountered two species of plants:

Furbish's lousewort - (last record of the species was dated 1943).

A Corps biologist and contractor found a small population of the Furbish's lousewort in the proposed project area of the Dickey-Lincoln School Lake in Maine.

A species of the plant Euphorbia was considered extinct in Hawaii until the summer of 1976, when a Corps of Engineers botanist found the plant near a proposed project area at Barber's Point on the island of Oahu.

During the past year the Corps of Engineers has experienced some conflicts under the Act. Section 7 requires the Corps of Engineers to conduct formal consultation with the Fish and Wildlife Service or the National Marine Fisheries Service. We have learned that the Corps District Engineers and the Regional Directors of the FWS cannot initiate the required formal consultation process until the final rulemaking process and listing has been completed. Cases exist where plants and animal species are on the proposed list, however, the formal consultation cannot be conducted until the final rulemaking.

The Furbish's lousewort was found during the summer of 1976 in Northern Maine. This plant was listed in a proposed ruling on 16 June 1976. As of this date, a final rulemaking has not been announced. Because of procedural ruling, the FWS Regional Director cannot officially respond to the New England Division Engineers' request for formal consultation. However, the Corps, in informal consultation with the FWS, is conducting further studies on Furbish's

lousewort. There are other projects where plants have been identified, but the formal consultation with the FWS cannot be initiated until the final rulemaking is announced. We believe that efforts should continue to improve the workability of procedures under the Act.

The designation of critical habitat imposes a constraint on both the Corps and other Federal agencies' activities. The thrust of the FWS in the maintenance and recovery of an endangered species is the recovery plan, developed by the recovery team. One of the very critical components of the recovery plan philosophy is the preservation of habitat. Therefore, present and future land use practices are of great significance.

The present trend of clearing woodlands, draining wetlands, etc. for timber, mining, agriculture and other purposes is reducing habitat, required by many wildlife species (both listed and nonlisted), at an alarming rate. When lands are purchased by a Federal agency for the development of a Water Resources project as authorized by the Congress, the agency must carry out the consultation process when endangered species are found in the project area. When the Director (FWS), in his opinion, concludes that the proposed project will jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its habitat, the Corps cannot proceed with the project without violating the law. In this situation we must appropriately turn to the Congress to resolve the conflict between two legal mandates; one to construct a project, and the other to preserve the habitat.

Several of the Corps of Engineers research laboratories have been conducting field studies for a number of years on the development, formation, and enhancement of habitat - both wetlands and uplands. We believe that these

research activities have the potential for furthering the purpose of the Endangered Species Act.

The Corps of Engineers has been and will continue to implement the letter and the spirit of the Endangered Species Act. Clearly, there will be occasions when the strict, literal application of Section 7 or Section 9 would stop some Federal action or project which should go forward to best serve the national interest. That is, there will be circumstances when the absolute protection of an endangered species or its critical habitat, as now is required by Sections 7 and 9, would stop some Federal activity necessary for national defense or for some other national purpose.

At present, only the Congress can intervene to require a compromise: any endangered species - even an obscure plant or invertebrate animal - must always prevail under current law. The Administration believes however, that case by case congressional consideration is the appropriate remedy for irreconcilable conflicts where Section 7 or 9 stops an important Federal project or activity.

Should the Congress elect to exercise the option of suspending the provisions of Sections 7 and 9 in specific cases, the Secretary of Interior or Commerce, as appropriate, could recommend mitigation measures to minimize that project's harmful impacts upon the endangered species and the President, or his designee, could resolve any disagreement between the agencies regarding mitigation. As a last resort, transplantation or acquisition of additional, protected habitat for a displaced endangered species could be required.

P.O. Box 8494
 U.T. Station
 Knoxville, Tenn. 37916

Ms. Catherine Korper
 Room 4206 Dirksen Senate Office Bld.
 Washington, D.C. 20510

RE: Federal Endangered Species Act

Dear Ms. Korper,

I would like to enter the following statement concerning the Federal Endangered Species Act in ~~the~~ the Senate record: Recently hearings were held on the possibility of altering the act, and since I could not be there, I understand that this letter will be entered if submitted to you by August 7th.

As an interested ~~citizen~~ and concerned citizen on what is happening to our environment and ecology, I feel that the Federal Endangered Species Act has been on the the most important pieces of legislation on the environment passed in many years. The act has been effective in identifying species that are endangered, yet, contrary to one of the main attacks on the Act, of the 4000 potential conflicts between the Act and endangered species, only three have gone to court, with the rest resolved between the interested parties of both sides. I also feel that the Act as it is now is flexible enough and no attempts should be made to amend it or to exempt species or projects from the

provisions of the Act. Therefore, I urge
 the Senate to allow the Act to remain
 as it is and not to amend it in any
 way, shape, or form. In the future, if
 it is proven that serious public problems
 arise which cannot be resolved, then
 we should reexamine the Act then.
 Present circumstances now do not
 warrant this.

Sincerely,
 James R. Crowell, Jr.

Summary of Testimony to Be Given Before Senate Sub-Committee on
Environment and Public Works on July 21, 1977, Concerning
TVA's Tellico Dam Project

Name of Witness: Alfred L. Davis, Rt. 2, Loudon, Tennessee 37774

I shall be testifying on behalf of my family--my parents, my brother and my sister. My great-grandfather bought land along the Little Tennessee River in 1872. This land was farmed by my family continuously--not one acre was sold--until TVA tore our fences down last summer.

Most of the landowners, and perhaps at least half of the people in the surrounding area, were opposed to the Tellico Dam Project when it was suggested by TVA in the early and mid 1960's. According to Aubrey Wagner, chairman of the board of directors of TVA, the inspiration for the project came from a letter written by the Superintendent of Schools of Lenoir City, Tennessee (Loudon County). The Superintendent, the late J. Guy Buckner, wrote of the lack of jobs for graduates of the local schools. The Tellico Dam Project was supposed to provide these jobs. However, I am sure that Mr. Buckner would be dismayed if he could learn that TVA's solution to the problem--if indeed there was a problem--would not be completed until 1977, sixteen years after he wrote the letter. And the project is not supposed to bring us any benefits for another 25 years. To pinpoint a problem in 1961 and to plan a solution which would take 41 years before any benefits would be realized is absolutely ridiculous.

A recent issue of the Loudon County Herald with the headlines "New Industry, Expansions Set Pace for Record Economic Growth" (July 14, 1977) illustrates quite well that industrial development in the Little Tennessee River Valley area is quite possible without TVA's assistance. And I am reminded that the little town of Greenback, where my parents grew up and which is only three miles from the banks of the Little Tennessee, recently tried to apply for federal assistance in building a town hall-community center. The town leaders found that they could not qualify for federal assistance because Greenback had no poor people and no unemployed.

The Little Tennessee River is undeveloped as far as its recreational potential and industrial development is concerned. TVA first planned to dam the river in 1942. They were WISELY thwarted by Congress, but everyone on the river felt TVA breathing down our necks, so to speak. When industries showed interest in sites on the Little T, they were warned away by TVA. There was only one boat dock and fishing resort on the river because no one wanted to invest time and money building a business and have TVA wipe it away with flood waters.

TVA has been an asset to our valley, but the agency has lost sight of its original goals. It is entrenched with bureaucrats who want to build dams when dams are no longer the solution.



**Federal Timber
Purchasers Association**

July 15, 1977

Senator John C. Culver, Chairman
Subcommittee on Resource Protection
Committee on Environment and Public Works
4204 Dirksen Senate Office Building
Washington, D. C. 20510

Dear Mr. Chairman:

Enclosed is our statement for the hearings on the Endangered Species Act of 1973. Please include it as part of the record of those hearings.

Sincerely yours,

Nicholas J. Kirkmire
Executive Vice President

NJK:glr
Enclosure



Federal Timber Purchasers Association

**STATEMENT OF THE
FEDERAL TIMBER PURCHASERS ASSOCIATION
ON THE ENDANGERED SPECIES ACT OF 1973
FOR THE RESOURCE PROTECTION SUBCOMMITTEE
OF THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE**

July 19, 1977

Mr. Chairman and members of the Subcommittee:

Members of the Federal Timber Purchasers Association compliment the subcommittee for holding this oversight hearing on the Endangered Species Act of 1973. This hearing is especially timely because the Act is beginning to have a significant adverse impact on many resource activities. We only regret that there is not enough time allowed to accommodate all of those who wished to testify. We are, therefore, submitting this written statement to provide you with our recommendations for improving upon the Act.

The mountain states of Montana, Idaho, Wyoming, western South Dakota, Colorado, Utah, Nevada, Arizona and New Mexico have 66 million acres of commercial forest land. This is almost as much as the Pacific Coast states (70 million acres). Nearly two-thirds (66 percent) of the commercial forest land in these mountain states is in the national forest system. It is upon this land that all thirty-five members of the Federal Timber Purchasers Association, with over 50 mills, depend for timber. Upon these same lands, countless species of fish, wildlife and plants live, some of which may someday be determined to be endangered or threatened. Therefore, members of the Federal Timber Purchasers Association have a vital share in how the Endangered Species Act is written, interpreted and administered.

Although the Endangered Species Act was enacted over three and one-half years ago, the interpretation and application of it is still evolving. Our involvement in trying to interpret the Act, as it applies to forest lands, has revealed several problems which we feel deserve correction.

First, we seriously question the value of including "subspecies" of fish, wildlife or plants in the definition of "species." Differences between subspecies are slight and of little importance except to a taxonomist. Listing should be limited to fish, wildlife and plants which are sufficiently different to be classified a full-fledged species.

We are also troubled that species may be considered endangered or threatened when they are merely rare. Many species have very limited ranges, or habitat, due to narrow environmental requirements. An exception should be made which would exclude species which are rare or unique simply where geographic, climatic or other natural factors have restricted their habitat.

Our principal concern with the Act, however, is based upon its potential direct and indirect effect on timber management in the Rocky Mountain and Southwestern states.

The primary difficulty that we see with the Endangered Species Act is that it places the preservation of any and all fish, animal and plant species above the needs of mankind no matter what their kind, extent or importance. We are aware of limited but significant public works projects which are already being stopped by the presence of obscure species of fish and plants. Because forests cover vast areas, it is inevitable that substantial acreages of productive commercial forest land will also be affected by the designation of endangered and threatened species.

Recently, the U. S. Fish and Wildlife Service moved to identify 13 million acres of forest land in the Rocky Mountains as critical habitat for the grizzly bear. The U. S. Forest Service felt that two million acres were sufficient; however, even two million acres is a huge area. This becomes especially significant if it unduly restricts timber management activities on commercial forest land areas.

We have also been alarmed by the possible consequences of listing hundreds of plants as endangered or threatened. The initial proposed rule making listed 1,767 plant species, including 479 in the nine mountain states mentioned earlier. Many of these plants grow in forested areas where timber management is practiced. If it is found that some of these species may be adversely affected by timber management activities, limitations may be imposed which will likely result in serious socio-economic consequences.

It is for reasons such as those recited above, that we believe the socio-economic consequences of any proposed listing must be thoroughly identified, measured, and evaluated before any species receives final listing. Listings should not be determined solely upon whether or not a species is endangered or threatened. Species should be protected only if essential activities of mankind are not adversely affected.

One means of ensuring consideration of economic consequences and broadening the responsibility for the identification of endangered or threatened species could be attained by requiring the concurrence of the Secretary of Commerce. We strongly recommend that the Act be so amended in order that economic interests are more fairly balanced with environmental interests.

We also believe that mandatory consultation with the Secretary of Interior by all other federal departments and agencies is unnecessary and counter-productive. Some federal agencies, such as the U. S. Forest Service, are well-staffed with wildlife specialists and would benefit little from consultation with the U. S. Fish and Wildlife Service. Government is already encumbered by needless duplication and unnecessary costs. Therefore, Section 7 should be revised accordingly.

This concludes our remarks. We ask that our comments be given thoughtful consideration and urge that our recommendations be adopted. We thank you for this opportunity to provide you with our thoughts on this very important matter and ask that this statement be entered into the record of the hearings.

July 1977

Future species listing: plants

The proposed listing of 1,840 (approx) plants has caused some alarm for the potential impact of protection under the Endangered Species Act. However the facts tend to assuage any of this premature concern.

1) The plants proposed occur generally in very localized areas. Thus we're not speaking of vast acres where potential projects will be excluded, but more likely of small plots necessitating fence construction around the last stand of an endangered flower, or a small readjustment of a site location. These are plausible, available modifications which do not require project elimination, and preserve species.

2) As well as being highly localized in distribution, the majority of plants appear to be situated in areas where project conflicts are not anticipated. In Hawaii, for example, where approximately 1/2 of the proposed plants exist, most of the plants are located above the 3,000 feet level. They are in the highlands away from most development and for the most part in protected areas such as park, plantations, and grazing lands.

Their existence in the highlands is not however indicative of species characteristic, but testimony to the fact that those in the lowlands, where development is extensive, have already been extinguished, depriving Hawaii of the native flora for which the islands are so prized. It is important to take steps to preserve the survivors.

Many of the factual points that are applicable to Hawaii can be extended to include a consideration of California which contains the second largest number of proposed plants.

3) Many of the plants which have been promulgated for listing as endangered or threatened, have been proposed cautiously. The studies necessary for confirming their status are lacking. However the listing of the plants will stimulate studies which may very well result in their eventual delisting. But the initial protection is necessary to guarantee preservation. It is in keeping with the purpose of the ESA to protect species believed endangered until such a time as they are self sufficient. Listing is the first step in this process of regenerating the species.

4) Still more alarmist statements have centered around Dickey-Lincoln and existence of the furbish lousewort, a plant proposed for listing in the dam area. However the project is currently undergoing NEPA procedures, awaiting the draft EIS. It is under attack for other reasons than an endangered species conflict. If Dickey-Lincoln should ever reach the stage of the ESA and consultations under section 7, it will follow the administrative procedures laid out by the act and work for modifications in which project and species will co-exist.

As recognition of the value of preserving our species increases, so most likely will the numbers and diversity of those proposed for protection. However there has been very few problems in the past and it appears that solutions are readily available if good faith consultation is accomplished.

Friends of The Earth August, 1977

Deborah LaBelle

The University of Iowa

Iowa City, Iowa 52242

College of Medicine
Department of Microbiology

(319) 353-5596



27 June 1977

Senator John Culver, Chairman
Subcommittee on Resource Protection
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Culver:

Re: Oversight Hearings on the Endangered Species Act

I am pleased that you are chairman of the Subcommittee on Resource Protection because I know the topic will receive careful and fair treatment.

Even though I am a microbiologist I have been working in international science for several years, and I know some of the biological problems we face in the world today; one of which is endangered species.

I have read the Endangered Species Act (1973), and I believe the two following items need consideration when you hold your hearings:

1) Greater stress needs to be placed on bringing to the attention of the public the great importance of conserving strains (varieties) and species of plants and animals. This is of significance not merely for ecological purposes, but even more so to have "wild" strains for genetic purposes. We are entering one of the great eras (referred to as genetic engineering) known to mankind and if we do not conserve the basic genetic stocks that have evolved over the years we may face many problems as we try to feed and clothe the masses of the world.

2) In Section 1538(b) relating to animals in captivity, under controlled environments, it is not too clear about the date for obtaining a permit. The date 28 December 1973 may be satisfactory for earlier exemptions. But it would seem that new permits should be judged as of the specific date that the individual species was first listed as endangered.

With kind regards. I am proud of the way you and Senator Clark represent our State, and the people of our country in general.

Sincerely,

J. R. Porter
Professor and Chairman

JRP:lx

7201 Tyner Road
Chattanooga, Tennessee 37421
July 30, 1977

Ms. Kathleen Korpon, Hearings Officer
Subcommittee on Resource Protection
4206 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Ms. Korpon:

Please insert the attached paper on Tellico Dam opposition,
existing Little Tennessee River potentials and alternatives to
Tellico Dam, into the Little Tennessee River - Tellico Dam
hearing record as my testimony.

Respectfully yours,



Kirk Johnson

Opposition to Daming the Little "r" Hot River

1. Fort Loudoun Extension at the mouth of the Little Tennessee River stopped by War Production Board in 1942.
2. Little "r" dam not brought up again in the 1940's or 1950's because of apparent non-support by Tennessee Congressional delegation.
3. When presenting the Tellico Dam proposal to the Little Tennessee River Valley Development Association on September 22, 1964, TVA Chairman Aubrey Wagner stated, "...the agency definitely wouldn't carry the project through without a mandate from the people in the area..." The LTRVDA, TVA's tributary area group in 1963 and 1964 which elected three directors each from Loudon, Blount and Monroe Counties, refused to endorse Tellico Dam.
4. Opposition to funding for Tellico Dam was intense in 1965. No appropriations were granted. The Association for the Preservation of the Little Tennessee River, the Tennessee Game and Fish Commission and farm groups led the fight.
5. TVA submitted the Tellico Project again in 1966. There was great opposition this time with at least sixty organizations on the list. But Congress voted funds for the dam.
6. On August 10, 1971, a suit was filed to halt construction of Tellico Dam on the basis that TVA violated the National Environmental Policy Act.
7. On February 18, 1976, the suit was filed to protect the snail darter habitat in the Little Tennessee River through the endangered species act.

Existing Little Tennessee River Resource Potentials

1. Agricultural - Farms in the 38,000 acre project area produced \$1,900,000 of products in 1964. Much of the 30,874 acres of farmable land should be put back into crops and livestock.
2. Historic Significance - At the time the white man began crossing the Appalachian Mountains in the early 1700's, the lower Little Tennessee River valley was the primary Indian habitation in the State of Tennessee. Approximately a dozen Cherokee villages were located in the project area including Echota, the sacred city of refuge and capital, and Tennessee, located at the end of the trade path and from which the name of the river and our state was derived. Virtually the entire history of Tennessee centered around this area for a period of at least sixty years. Fort Loudoun, which is a National Registered Historic Landmark, was the first permanent British settlement west of the Appalachians. Others include the Tellico Block House site, the Charles McClung McChes mansion, the Bowman House and the Davis House. Archaeological excavations on Rose Island revealed some of the earliest human occupation found in the Southeast dating back to between 6110 and 6850 B.C.

A historical park should be established to preserve the more important of these sites.

3. Scenic Stream - The Little "r" is a clear, cold fast flowing stream which is located in view of the Great Smokey Mountains. It is a popular float stream. It is also a trophy trout stream with a record to date of 23 1/2 pounds.

At present, there is a national surge in popularity in stream recreation. Larger streams are more important because they can accommodate more people. In the Tennessee River basin, more than 80% of the river miles in streams the size of the little "r" or larger are already impounded by reservoirs. Large man-made reservoirs in Tennessee currently total more than 500,000 acres.

Access for recreational use of the river has always been limited in the past. Recreational use of the river should be developed.

4. Endangered Species - The Little Tennessee River with its swift currents and gravelly bottom is home of the snail darter which is on the critically endangered list of the Department of Interior.

(over)

Alleged Tellico Dam Benefits and Alternatives

1. **Flood Control** - TVA has issued claims that if it had not been for environmentalists that Tellico Dam could have saved \$15 million in the March 1973 flood at Chattanooga. This is a purely emotional charge because according to TVA's own schedule issued in 1970 (prior to the first Tellico Dam suit in August 1971) filling of the Tellico Reservoir would not begin until at least January 1975. If TVA had been left to their own devices, the Tellico reservoir would not have been ready for the March 1973 flood.

Flood Control Alternative - Since Tellico Dam is nearly complete, it could be kept for supervised emergency, temporary flood storage. TVA was planning to keep only 126,000 acre-feet of Tellico's space for flood control. As happened in the March 1973 flood when many reservoirs were not at minimum drawdown levels, there are no assurances the full 126,000 acre-feet could be utilized in the event of a large flood. If the full 447,300 acre-feet of Tellico space would be available, larger reductions in crests like the 1957 and 1973 floods would be possible than with the current TVA plan. This is similar to the concept of temporary flood storage reservoirs that Arthur Morgan, the first TVA Board Chairman, developed for the Miami River basin of Ohio.

With respect to the Chattanooga flood damage problem, the current TVA leadership has not been too concerned. In March 1972, just a year before the last major flood, TVA enticed the city of Chattanooga to remove 2,600 acres from the flood plain ordinance opening it up for development. TVA also removed 1,713,000 acre-feet of flood storage in the tributary reservoirs above Chattanooga by raising minimum drawdown levels in 1971.

It should also be pointed out that in the March 1973 flood that local streams at Chattanooga reached record discharges for the period since accurate records have been kept. A 1961 TVA report states that even with the extensive reservoir system that the maximum probable flood for Chattanooga would be 486,000 cfs compared to 267,000 cfs in March 1973. TVA has previously warned Chattanooga that Tennessee River levees are required for additional substantial flood protection. Former TVA Chairman Herbert D. Vogel reiterated this in a letter published in the March 25, 1973 Chattanooga Times. Testimony on TVA calculations in the 1973 NEPA hearing indicated that Tellico Dam would lower the maximum probable flood at Chattanooga by only 4.8 inches.

2. **Recreation and Alternative** - In the previous cost/benefit analysis, TVA has reported that 38% of the justification for Tellico Dam is in the reservoir recreation and fish and wildlife category. The alternative to development of Tellico reservoir for recreation and fishing is to continue use of the 154,190 water surface acres in the existing TVA reservoirs in the vicinity of Knoxville which include Watts Bar (39,000 acres), Fort Loudoun (14,600 acres), Melton Hill (5,690 acres), Cherokee (30,300 acres), Norris (34,200 acres) and Douglas (30,400 acres).
3. **Power Generation** - By increasing flow through Fort Loudoun generators, the Tellico would produce 200,000,000 kwh of electricity per year. This would increase TVA's system output by only 0.18% or about 1% of the expected generation of Sequoyah or Watts Bar nuclear plants that are under construction.

TVA is required to repay to the Federal Treasury the portion of the project cost allotted to power facilities. In the Tellico case, this should constitute about one third of the cost of the reservoir, nearly one half of the canal cost and a minority but substantial percentage of the cost of the dam proper. An investigation should be made to determine if over the project life that the net value of the electricity generated is worth more than the capital expenditures mentioned above.

4. **Navigation and Shoreline Development** - TVA has essentially claimed that new industry can be attracted to the region only if a navigable channel is created to Vonore.

TVA's Duck River Project, that is currently being built in Middle Tennessee, has "Enhanced Employment" as its major justification. TVA states that because of adequate water supply created by the project approximately 3,000 jobs will result on the waterfront site even though in the Duck River case, the sites are at least 125 miles from an navigable channel.

The potentials that TVA is spending \$78,500,000 of public funds to develop in Middle Tennessee exist at Vonore without Tellico Dam.

Aug. 8, 1977

Ms. Kathleen Korpor
Rm. 4206
Dirksen Off. Bldg.
Washington, D. C. 20510

Please see that this is entered as testimony for the Senate's hearing on the Endangered Species Act.

For the public record:

Members of the Tennessee Endangered Species Committee and the Little Tennessee River Alliance, representing a total membership of over twenty thousand people, came to Washington for the Senate hearings on the Endangered Species Act to give their thoughts and views on the Tellico Project. In addition, the Eastern Band of the Cherokee, representing 8,000 people, has passed several resolutions which share the views and concerns of these conservation organizations. The hearing was a democratic opportunity for us to offer our ideas on how the project could best benefit us, the people.

After carefully examining the pros and cons for a dam and reservoir in the project, experts from a variety of diverse fields, and the GAO study, bear out the need to consider alternatives to impoundment of the river.

TVA insists that since the dam has already been built, it should be closed. But this has always been a controversial project, against the will of many people, and against economic good sense. If one should work cleaning out an attic and piling up old furniture to burn, and suddenly find out that the furniture includes many valuable antiques, it would be foolish to go ahead and burn it anyway, just because it's all piled up and ready to go. The Tellico Dam is a similar situation, and this controversy is a conflict between the preservation or the destruction of a valuable resource.

In spite of warnings and protests from innumerable federal and state authorities, TVA has wielded a frightening amount of power in pursuit of development of the project and completion of the dam. By condemning over twice as much land as was needed for the reservoir, TVA was able to justify the high cost of the project from the profit they would make on land re-sale. This is an outrage to people who believe in the rights of individual property

owners - especially those who owned farms which would only have a few acres flooded, but were forced to sell their entire holdings. The bulldozing of the snail darter's breeding grounds (the day after it was placed on the Endangered Species List), the leveling of ancient Cherokee archeological sites and use of sacred burial mounds for fill dirt, and a 24 hour cost-overtime construction schedule (which increased already unreasonable project costs), all seem to indicate a destructive and narrow-minded approach by TVA.

Unfortunately, this approach has shut out the opportunity to choose from a variety of options. By ignoring court injunctions to halt construction on the dam, TVA has tried to use the money of the taxpayer to tilt the scales of justice and buy the basis of its arguments - at the expense of our nation's laws. Sixty-five million dollars was spent on the project after the Endangered Species Act was passed and the snail darter's existence established. That's like saying, "If TVA does it, then that makes it legal - and we're putting down 65 million to prove it!"

However, agriculture in the valley would pay for the dam in a few years, and recreational development of the river would ensure employment to many residents of this area. Most probably, there is a stronger possibility of job materialization from this sort of development than from industrial lakeshore development, which, like the lakes themselves, already exists in a surplus well beyond the demand. This is one of the few remaining rivers of its kind in the country, and the home of a species which may become forever extinct from this earth. How can we say that it's too late to change plans for using this land? We should be flexible and open-minded about alternative ideas, instead of limiting ourselves to past decisions which might not be as wise in light of new evidence.

Please do not make the mistake of assuming that only a small minority opposes the dam, and that if the majority would just as soon see it closed, then the solution is to close it. In the first place, no reliable or unbiased attempts have been made to assess public opinion on this issue (although the majority of speakers at all four of Congressman John Duncan's local hearings opposed the dam, and at a 1964 meeting between Aubrey Wagner and the area's residents, the vote was over 600 to 0 against it). To a growing number of people, it is becoming more evident that the use of a

dam in the project will disinherit a fruitful and sacred land from future generations, and will forever separate us from the treasures of knowlege and spirit which this land holds. We now have the opportunity to demonstrate wise stewardship in the use of the land with a continuation of its life and habitats, and a chance to make this project something we can all be proud of. We must move away from the prevailing trends of wasteful spending on destructive and unneeded projects, and towards the "building of a better enviroment" based on preserving and caring for those enviroments we depend upon - especially an enviroment as unique and rich as the Little T Valley.

Sincerely,

James Lyle

James Lyle
Knoxville, Tennessee

A Report to
The Senate Committee on
Environment And Public Works

regarding

The Endangered Species Crisis

from Paul G. Miller

Contents:

1. Introduction
2. The Scope of Our Concern
3. The Problems We are Experiencing
4. Additional Observations
5. Recommendations
6. Closing Statement

INTRODUCTION

The following testimony is respectfully presented on behalf of the Wisconsin Bird and Game Breeders Association, which represents over 300 bird and animal breeding operations.

With many species of birds and animals becoming rare in the wild state, we feel that captive propagation is becoming more important and more necessary in preserving these rare species of animals. We consider captive propagation of rare species a very constructive form of conservation. Our members are very dedicated to this form of constructive conservation; their operations represent considerable financial investments, years of daily care and attention, and very firm emotional commitments to the preservation and enhancement of various species of animals.

In recent years, our efforts to carry out this very constructive form of conservation have come under severe criticism and strangling regulation by the Fish and Wildlife Service through the enforcement of the Endangered Species Act of 1973. The following testimony elaborates on the problems we have been experiencing, the reasons underlying these problems and some of the gross inconsistencies relating to the "endangered" species issue.

As you read the following testimony, please keep the following thought in mind:

When all the natural habitat of a species is gone, there are two choices: captive propagation or extinction. As constructive conservationists, we are dedicated to captive propagation as a means of preserving rare species. Unfortunately, The Endangered Species Act, and its enforcement, is severely hampering our efforts, and is forcing many species

closer and closer to extinction. Which would you prefer ???

Preservation (via captive propagation)

or

Extinction (a la the Endangered Species Act).

2. THE SCOPE OF OUR CONCERN

In this testimony, our specific concern is with the interstate sale and shipment of healthy, non-native animals which are already in this country. Our sole purpose in making such sales and shipments is the preservation of such species of animals through their use in captive propagation programs.

We are not concerned, in this testimony, with any species of animal native to this country, importation or exportation of any animals, shipments of any sick animals or animals carrying parasites, or shipments of animals to non-propagators.

3. THE PROBLEMS WE ARE EXPERIENCING

Briefly stated, the licensing and permit requirements imposed upon us by the Fish and Wildlife Service in enforcing endangered species legislation are far too restrictive. The typical waiting period for a shipping permit is 4 months; it usually takes at least 3 months to get a response to a letter of inquiry requesting some information or a permit application. These time frames are far too long considering the timing involved in breeding some species. To be exact, many species have a long breeding cycle, but a relatively short period of time within that cycle when they actually breed. In many cases, an additional spare or substitute animal is required during the breeding period. If this need arises, the extra animal is needed in a hurry (say, within a week or so). Clearly four

months is far too long. Captive production of many rare species has been cut down or even stopped due to this extremely long waiting time and the total lack of understanding on the part of the enforcers. This long time delay is clearly counter-productive.

Examples illustrating the above problem are super-abundant; to be brief, consider two typical situations. A pheasant breeder applied in mid-December for a permit to ship two hens in February; the permit was received the end of April, far too late to establish a mating. In addition, the mates intended for these hens became confirmed bachelors and probably will never be productive. This is truly a waste of good breeding stock forced upon us by these permit requirements. Was this the intention of all this "endangered" species legislation??

The second example is a flock of Hawaiian Ducks. A breeder produced 40 ducklings one year and grew them out; that fall he tried to sell them and was stopped by the Fish and Wildlife Service. After a lengthy hassle with the bureaucrats, he could no longer afford to feed all these ducks, so he turned to his only alternative. He butchered all the ducklings and the parent stock- another bureaucratic victory!!! Is this conservation?? Indeed this is destructive bureaucracy in action!!

There are many more cases of gross bureaucratic inconsideration which resulted in extremely counter-productive breeding situations. Please contact me for more references.

To stem off the volume of complaints about bureaucratic abuse of the captive propagator, the Department of Interior has come out with a very bad patch to an impossible situation; it is called the Captive Self Sustaining Population (CSSP) approach. This is still nothing more

than a tangle of red tape and paperwork. Getting a species declared "self-sustaining" is even a bigger hassle than getting a permit.

Considering the names alone a Captive Self Sustaining Population of Endangered Species is a contradiction in terms. If a species is truly self sustaining in captivity, (which many "endangered" species are), then certainly they are not really endangered. As Constructive Conservationists, most animal breeders feel that the CSSP program is a farce; it is nothing more than a bureaucratic ploy to strangle us in red-tape and paperwork. The CSSP program serves no good or constructive purpose at all.

4. ADDITIONAL OBSERVATIONS

The "endangered" status of a species is determined in Berne, Switzerland by a group of nature lovers who are totally unfamiliar with the status of any species under propagation in America. Thus many species which are very numerous in captivity in America are declared "endangered" due to poor management of that species in its own natural habitat. Please note that the American people effected by these "endangered" species regulations have no say in determining the status of a species; indeed, they are victims of a group of foreigners who rather capriciously declare many very prolific species "endangered". Putting it very politely, this is a sell-out of the American animal breeders. Is this country being run from Washington, D.C. or from Berne, Switzerland?? Why are 'nt taxpaying American citizens given any consideration in determining the "endangered" classification of a foreign species???

With all the zeal and fervor applied to regulate and control individuals who carry on constructive captive propagation programs, it is interesting to note the contrast in effort put forth during the latest "depopulation" of bird flocks in California by the USDA. Many endangered species specimens were killed by the USDA on the questionable basis of "exposure to Newcastle" or "suspicion of Newcastle". Where was the guardian of the endangered species, the Fish and Wildlife Service?? They certainly were not making any attempt to preserve any endangered species! This leads me to conclude that, while paying lip service to preserving rare animals, the enforcers are really only worried about conserving one thing: their jobs and the artificial "need" for them. This endangered darter fish behind the dam project appears to be another grandstand play at buoying up their job security. It is very inconsistent to fight for some endangered fish and yet let the USDA kill thousands of endangered birds.

On several occasions, I have heard that the "reason" for all this regulation is to prevent poaching and smuggling of birds and animals. The captive propagator is not a poacher or a smuggler and should not be made to suffer for the illegal activities of others. These regulations punish the constructive conservationist for the illegal activities of the destructive poacher: this is totally illogical and counter-productive. If the enforcers cannot successfully catch and prosecute poachers and smugglers, this is not the fault of the captive propagator. Why should the constructive conservationist be made to suffer because of inept police work?? Here again there seems to be a deeper reason: job justification on the pretense of "preserving animal life".

5. RECOMMENDATIONS

My first recommendation, naturally, would be that the Congress gracefully bail us out of all this "endangered" species regulation nonsense. We have no quarrel with constructive propagation programs. We just can't live with the harsh and totally unreasonable regulation. Therefore, we would like to respectfully request that all licensing and permit requirements for interstate sale and shipment of healthy, non-native species be suspended. The current regulation, and its enforcement, is totally counter-productive and unbearable.

6. CLOSING STATEMENT

It is up to the Government of the United States to decide what it wants to preserve: rare species of animals or bureaucracy;

- i) if the Government is truly interested in preserving rare species of birds and animals, as most taxpayers and voters are, then allowing the constructive conservationist the freedom to carry on captive propagation programs without harassment and regulation is the obvious answer;
- ii) if the Government is only interested in preserving the cancer of strangling regulation on constructive American free enterprise, then the Endangered Species Act of 1973 and its current enforcement are indeed achieving this goal.

Thousands of American citizens, hundreds in Wisconsin alone, are suffering and distressed by this critical and counter-productive approach to species preservation. Is it too much to ask to have the right to unobstructed free enterprise in this very constructive area of the conservation movement??

203 North Shore Dr.
St. Clair Shores, Mich. 48080
July 15, 1977

Honorable John Culver
Subcommittee on Resource Protection
United States Senate
Washington, D. C. 20510

Dear Senator Culver:

For the past few years, the Michigan Cactus and Succulent Society has strongly supported a meaningful program to protect endangered and threatened plant species in the wild. We would very much appreciate your accepting the following statement for the oversight hearing on the Endangered Species Act of 1973 to be held by the Subcommittee on Resource Protection, July 19-22, 1977. It serves a constructive purpose to review a program periodically in light of policy to see that the outcome is in accordance with its intent and to take such corrective action as deemed necessary.

The Endangered Species Act is a very comprehensive piece of legislation and very complicated in its detail. In our view, a program to protect endangered and threatened plants has never gotten off the ground because of the existence of serious conceptual problems of policy and administration.

When the Congress passed the Endangered Species Act, there were a number of unresolved questions concerning the treatment of endangered and threatened plants within a framework which previously had applied only to the regulation of fish and game. The Congress decided to hold these questions in abeyance pending a report to Congress by the Smithsonian Institution. Therefore, the plants were not included in several major provisions of the law such as a prohibition on taking and the federal-state cooperative program. In January, 1974, the Smithsonian Institution submitted to Congress its "Report on Endangered and Threatened Plant Species of the United States". We feel that the recommendations provided in this report present broad scientific principles that can be translated into a workable and responsible framework of governmental policy and administration. In our work on the cactus problem, we have had occasion to refer to these recommendations frequently and have found them instructive and highly relevant.

The Taking. Over the past few years, we have been painfully aware of the massive collecting of cacti from the wild for sell on the market and also the collecting of rare plants by unscrupulous persons. For a time, it seemed that only one jurisdiction--Arizona--was vigorously enforcing a law to protect native plants. Now in 1977 this situation is not as bleak as it once was because the states are beginning to take action to protect their native plants. Under the pressure of large scale commercial taking, we expect that other states will also decide that it is not in their best interest to allow "open season" on native plants.

Further relief has been provided by Congress in the passage of the Bureau of Land Management Organic Act (PL 94-579) which among other things strengthened law enforcement authority. Since about 20 percent of the land area of the United States falls under the jurisdiction of BLM, this program has potential. Under this authorization, BLM has closed the heavily exploited Organ Mountains to removal of any vegetation by permit (El Paso Herald-Post 6-22-77) and a desert ranger unit is being organized to patrol the California desert (Arizona Republic 3-27-77). But we are not yet out of the woods (or the desert as the case may be). Many states have not yet taken action and urgent problems remain in such states as Hawaii. The problem will be resistant to remedy because of the high profits involved, a multi-million dollar business according to Arizona authorities. Thus far, it seems that the most effective approach to the problem of taking is through the states and federal agencies which have enforcement personnel available locally.

Federal-State Cooperative Programs. Section 6 (c) of the Endangered Species Act provides for federal-state cooperative programs for the animals only for which federal funding is available. Under Section 6 (c) the states are authorized to "conduct investigations to determine the status and requirements for survival of resident species of fish and wildlife," and to "establish programs, including the acquisition of land and aquatic habitat or interests therein for the conservation of resident endangered species or threatened species."

Research is necessary to define a problem in order to decide what can or should be done about it. In its report to Congress, the Smithsonian Institution called for the monitoring of plant populations and research into the causes of rarity. In addition, the Smithsonian Institution recommended that a national registry should be maintained on the status of endangered and threatened plant species in the United States. The development of informational resources from the states would facilitate the maintenance of a registry.

Michigan is among the states that have designed a program that affords protection to both animal and plant species. The Michigan Endangered Species Act of 1974 provides for the conservation, management, enhancement and protection of endangered and threatened species. Under the act, the Department of Natural Resources is authorized to develop information necessary to determine appropriate management measures which would assure the continued ability of fish, plants and wildlife to sustain themselves successfully. For plants this information includes population distribution, habitat needs, limiting factors and other pertinent biological and ecological data. We call your attention to the enclosed reprint from The Michigan Botanist, Vol 16, 1977 which describes the continuing work of the Technical Advisory Committee on Endangered Plants of the State Department of Natural Resources, Dr. John H. Beaman, Michigan State University, chairman currently.

In view of the progress of the states to provide plant protection, we urge that federal funding be made available for plant programs as well as animal programs but without the strictures which have paralyzed efforts in this area by the Fish and Wildlife Service.

Listing. Section 4 of the Endangered Species Act provides for the determination by the Secretary of the Interior of whether a species is endangered or threatened on the basis of specified criteria, and also to provide for the listing of species so determined through the administrative rule making process. According to the Fish and Wildlife Service's "Endangered Species Technical Bulletin", April, 1977, no plant species are listed at present but there are 14 plants in the prospective stage of rule-making and about 1850 plants awaiting processing.

Rare native plants have received no protection thus far under the Endangered Species Act, and there appears to be little prospect of any protection in significant numbers in the future under the existing system. Protection under the Endangered Species Act is dispensed on an all-or-nothing-at-all basis. This is because the listing of each specie activates or makes available a very broad scope of regulatory devices or remedies so as to provide the fullest kind of protection to the specie. This system has had several results. It provides a very high degree of protection to those species already listed and no protection to any species not on the list no matter how threatened. The recommendation in January 1974 of the Smithsonian Institution that urgent protection be given to commercially exploited species was ignored because it did not fit into the all-or-nothing-at-all system. The Fish and Wildlife Service has been unable or unwilling to deal in a meaningful way with rare plants because the sheer volume would break the all-or-nothing-at-all system.

But the most damaging aspect to this system is that it fails to allow the identification of a problem and the selection of alternative courses of action in light of the public interest. Occasionally compromises have to be made as a means to accommodate varying interests. An example is a report from the Albuquerque Journal which tells of the construction of Tramway Blvd. in northeast Albuquerque. When it was discovered that the rare Pediocactus parrvirecanthus lay in the path of construction, the city transportation department contacted scientists at the University of New Mexico so that the entire population could be transplanted out of harms way. Not all such problems can be solved with such ease but a sense of responsibility demonstrated by all parties helps.

The public interest is served not only by highways but by the survival of plants. We believe the American public understands the importance of plants to their lives and the desirability through appropriate means of assuring their survival through diversity. The United States Department of Agriculture has been involved for many years in programs to assure the survival of our crop plants through the preservation of genetic resources of wild plants.

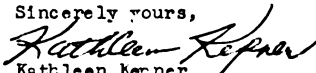
We believe that the Endangered Species Act was meant to raise in priority the consideration of endangered species but not to consider that as the only priority. The listing process should probably be disengaged from automatically invoking such broad remedies. We speculate that the Fish and Wildlife Service cannot predict the consequences of listing and that is why they "go slow".

Holding Federal Agencies Responsible for Their Actions. The Endangered Species Act recognizes that the agencies of the federal government are among the chief culprits in the destruction of habitats of wild animals and plants. Recognition of that fact is there in Section 7 which states that "All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act...and by taking such action necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species...."

We feel that Section 7 is addressed to a very real problem and believe that there is a need for a watchdog function in this area. State and local governments live in glasshouses. Public corporations have to deal with the complaints of their local customers. But the large federal bureaucracies are clothed with a degree of anonymity that inspires considerable distrust by the ordinary citizen. We urge that the Subcommittee on Resource Management preserve the intent of this section and give consideration to the proper location of such a watchdog function.

Seeds. The Endangered Species Act in Section 3 (9) provides that "The term 'plant' means any member of the plant kingdom including seeds, roots and other parts thereof." The regulation of seed should be stricken from the Act due to the fact that government lacks the institutional capability to regulate tiny seeds, many of which cannot be positively identified without microscopic examination by a professional biologist. Moreover, some botanists have said that such regulations are pointless because the over abundance of seed production in nature. While the Fish and Wildlife Service is charged with regulating seed, the United States Department of Agriculture is collecting it and storing it. See enclosed article from Horticulture, April 1977, "Breeding Crisis for our Food Crops-- Is the Gene Pool Drying Up?" by Dr. Garrison Wilkes, University of Massachusetts.

Sincerely yours,



Kathleen Kerner
Conservation Chairman
MICHIGAN CACTUS AND SUCCULENT SOCIETY

Enclosure 2

(From Horticulture, April 1977)

Breeding Crisis For Our Crops Is the Gene Pool Drying Up?

**Only 15 major crops stand between mankind and starvation,
and the genetic diversity they depend on is threatened**
by Garrison Wilkes

Never before in human history has a nation been as well fed with such a diversity of foods as the United States. Yet we are far more vulnerable than many of us realize because few of these foods are native to this country. Most of our important crops—wheat, soybeans, tomatoes, and citrus—originated in regions outside our borders. If we were to exist on native plants alone we would have a diet of such minor crops as blueberries, sunflower seeds, cranberries and Jerusalem artichokes. Our agricultural wealth consists not only of good crop land but of plants that have been specifically selected and bred for high yield. These yields would never have been possible without diverse genetic resources to draw on, but those resources are now in danger of disappearing.

The genetic diversity of the crops in the United States is a national wealth which the varied racial and ethnic immigrants brought to our nation from their homelands and acclimated in fields and gardens across the country. With the arrival of the earliest settlers barley from England suddenly began to grow beside barley from Germany in fields at Lexington and Concord. Ship captains brought back cargoes of tea and spices, but also wheat from Calcutta or rice from China. Spanish missions across the West introduced grapes, figs and oats ideally suited for arid lands. All these crops were the culmination of thousands of years of human cultivation in the far-flung regions where they had once been wild but less productive plants. Wheat had once been a wild plant in the Near East, soybeans in China, corn in Mexico, the cole vegetables in the region bordering the Mediterranean.

Today the entire world is fed by domesticated plants which did not exist except as wild progenitors 400 human

generations ago. Most of our present food plants are the products of a very long selection process by which they have become completely dependent on our care for their survival. We call this change domestication and in the course of this process food plants have crossed a threshold. Their survival is now keyed to human preparation of the ground, diminished competition with other plants, sowing of the seed in the right season, protection of the plants during growth, and finally the collection of their seed. Domestication has made these plants our captives, but the human population has increased so dramatically that now we could not meet our food needs with wild plants. So, ironically, we are held captive by the food plants that we have domesticated.

The actual number of plants that feed the human population is amazingly small. A list of as few as fifteen plants accounts for three-quarters of all plant calories consumed. They include five grasses: rice, wheat, corn, barley and sorghum; three legumes: soybean, common bean and peanuts; two sources of sugar: sugar cane and sugar beets; two tropical tree crops: coconuts and bananas; and also three starchy root crops: potatoes, sweet potatoes and cassava. Though the list does not account for many vegetables (which are high in vitamins and minerals but relatively low in calories), these fifteen food plants stand between health and starvation for the human population. Not only is the number of plants that feed the world becoming smaller—so is the genetic variation which is the basis of breeding new varieties. These trends are coming at a time when the human population is expanding rapidly and we are going to need all available options to meet world food demand.

The reasons for this contraction are complex, but they have to do in part with an ever-increasing population, rising expectations of rural peoples, and intensive efforts to increase production on all the world's arable land. The result has been a drive to develop plants that respond to fertilizers, require less water to develop, and are very uniform so that they can be easily machine harvested. Plant breeders have collected germplasm from the native plants in very specific areas of the world for breeding and selecting. For the most part, the emphasis has been on breeding new, improved and usually genetically uniform varieties. In terms of yield, the benefits of this process have been obvious. But the price has been the genetic limitation—and the increased vulnerability—of our major food crops.

During domestication many of our crop plants have been so genetically altered that they can no longer compete in a natural plant community in the wild. For many, the wild plant from which the domesticated crop was derived no longer exists. The varieties which are closest to the ancestral form today are the primitive "land races" still being grown in those regions of the world where the plant was originally domesticated or where the crops subsequently acclimatized a long time ago.

Each of the basic food plants that we now grow originated in a relatively confined geographic region which in many cases has remained the area of greatest genetic diversity. These regions of origin (see map, p. 52) are called Vavilov Centers after the Russian plant breeder and geneticist N. I. Vavilov, who first studied and identified the nine major centers of origin, and in some cases, secondary centers where the crop had undergone rapid

evolution. According to this geneticist, these centers cover less than 1% of the land area of the world but from them have come almost all our food plants. They are located in mountainous regions near the two tropics (Cancer and Capricorn) in regions long populated by agricultural peoples, but isolated by steep terrain, arid regions or other natural barriers. In the 1920s Vavilov found these areas to be essentially untouched by the changing world and still practicing ancient agricultural customs.

Over the last half century, these regions have become the genetic bank accounts to which the plant breeders have turned to improve our food plants. Each has been tapped for useful genes which have intensified or changed some plant characteristic, increased resistance to fungus diseases or insect attack, or improved the durability or the nutritional qualities of the harvest. Yet the rapidly expanding human population and changing agricultural technology throughout the world threaten the very existence of these genetic reservoirs, an irreplaceable heritage which has been the only hope of freedom from want and hunger for every civilization.

Genes can only be stored in living tissue, living seeds or bud wood. Once a plant dies, its genetic inheritance is lost forever; hence the concern to preserve those indigenous varieties and land races found in the centers of origin. These plants contain a thousand times more variation than highly bred varieties of genetically uniform fields in advanced agriculture.

Cultivated plants have not always existed as the genetically uniform populations of the industrial nations. The crops that are in current use have generally undergone a very rigorous selection process by which the plant breeder has made them genetically identical for each trait. These are the plants grown as dense pure stands (monocultures) in the straight rowed, carefully tended and fenced fields with which we are familiar. These varieties possess a "highly tuned" set of

genes but a considerably narrower gene base than the land races of indigenous agriculture from which they have been developed. The narrowness of the genetic base of advanced cultivars is responsible for the higher yields in the United States. But it is also responsible for much greater risks of crop failure.

Primitive varieties or land races are the largest depository of genes for food crops. Generally these land races perform poorly under the large doses of fertilizer, water and intensive cultivation because they are the product of a long evolutionary history lacking these factors. However, they have a wide range of ability to withstand cold temperatures, drought, disease, insect damage and other variables. These are the raw clay with which the plant breeder works.

In most indigenous agricultures there is usually a considerable diversity between fields since different cultivators maintain their own seed supplies. (These supplies reflect their own selection policies, the vagaries of adaptation to their fields and the true length of the genetic history for the "family seed," which may trace back a millennia.)

As a result of the distinction between fields, hybrids and their segregates that do occur represent considerable and repeated explosions of gene recombinations. Although the yields of fields such as these are seldom high, they are reasonably stable year in and year out under varying environmental conditions.

More important, perhaps, the risk of disease and insects is much less pronounced with land races.

Throughout the world there exists an unstable "truce" between our basic food plants and their pathogens. Genetic changes, whether mutations or new recombinations, are constantly taking place in individual pathogens and if one grows successfully on a previously resistant plant host, it will be able to spread across the entire populations of genetically uniform plants. In many parts of the world still, entire plant populations may be in a single field, in the fields of a village, or in a district. As a result, the pathogen can make only small inroads on the crop. But in advanced agricultures, such as ours, the high density of crops creates ideal conditions for insects, nematodes, bacteria, viruses, fungi and rodents. In our agribusiness-managed

system, the plants' genetic uniformity—and vulnerability—extends nationwide. The price for maintaining high yields is a whole arsenal of insecticides, fungicides, herbicides and a constant change in the genetic material and breeding for resistance.

The wheat stem rust which took 65 percent of the Durum wheat crop in 1953 and 75 percent of it in 1954 (and 25 percent of the bread wheat the same year) was a demonstration of the danger of genetic uniformity. The case of the southern corn blight of 1970 is a more recent example of the existing problem.

The southern corn blight resulted in the destruction of approximately one-fifth of the American corn crop. Since the blight was highly virulent only on a certain advanced cultivar, the problem was corrected the following year by returning to seeds of obsolete cultivars for resistance. Fortunately, the effect of the blight was higher food costs rather than human starvation. Yet in countries such as Guatemala or Kenya, where the people obtain half their calories directly from corn, such a crop failure would have been disastrous.

Such disasters have occurred. In the 18th century, the potato, a new food plant from the Andes of South America, was introduced into Ireland. The genetic diversity of the introduction was small, but, isolated from some of its diseases, the potato yielded well and the Irish population increased. In the 1830s, with the population increased three-fold to eight million, a previously unknown disease of the potato plant caused by the fungus *Phytophthora infestans* appeared in Ireland. Within ten years, two million Irish emigrated, two million died and four million remained, many in abject poverty. The Irish had inadvertently narrowed the genetic base of the crop and there remained little or no resistance to the devastating fungus. Since then, genes for resistance from the Andes have been bred into the crop.

Following the 1970 American corn blight, the National Academy of Sciences discovered that a dangerously

restricted genetic base exists in many of our basic crops. For hard red winter bread wheat about 40 percent of the acreage had been planted with just two varieties and their derivatives. In soybeans the genetic base was limited to just six seed collections. For sorghum, as with corn prior to the blight, all then current hybrids were of a single advanced cultivar. Nearly all our basic crops, the Academy found, were on such a narrow genetic base as to be highly vulnerable to a new race of pathogen, a new biotype of an insect pest or a common environmental stress. Some changes have been made in the last six years but the situation remains essentially unaltered.

There is nothing biologically unsound about using a narrow genetic base to breed for high yields in the shortest period of time; but it is unthinkable not to preserve and maintain the ready reserves of genetic diversity in native agriculture for future plant breeding needs. Up to now, we have been able to return to areas of genetic diversity, usually located in third world nations, to collect germplasm for further breeding programs. Suddenly, in the 1970s, we are discovering that Mexican farmers are planting hybrid corn seed from a midwestern seed firm, Tibetan farmers are planting barley from a Scandinavian plant breeding station, and Turkish farmers are planting wheat from the Mexican Wheat Program. Each of these classic areas of genetic diversity within crops is rapidly becoming an area of uniformity.

The reason for alarm about the loss of native strains is the irreplaceable nature of the genetic wealth. Because genes can be stored only in living systems, the native varieties can become extinct once they are dropped in favor of introduced seed. The extinction can take place in a single year if the seeds are cooked and eaten instead of saved as seed stock. Quite literally, the genetic heritage of a millennium in a particular valley can disappear in a single bowl of porridge.

In an age of substitutes and alternate materials the optimistic look to induced mutation for crop improvement. Indeed, this can be a source of variation. But it compares poorly with the resources found in land races. After all, most of the major crops represent the living biographies of 8000 years of accumulated mutation integrated and balanced in a genetic

system. We have synthetic fibers replacing cotton and linen, synthetic rubber replacing natural rubber but no synthetic foods yet or in the immediate future replacing the basic crop plants. Clearly realizing our dependence on the genetic resources of plants ought to instill a sense of humility which in the arrogance of our accomplishments we have tended to lose.

Positive steps toward germplasm preservation are now being taken. Two methods are possible: one is the establishment of gene banks of collected material; the other is *in situ*, or on site, preservation.

Preservation through gene banks is now being undertaken by both national governments and the International Board for Plant Genetic Resources, an autonomous non-profit organization under the aegis of the United Nations and World Bank. The international effort involves a world system of germplasm banking that includes centers in eight countries. And on the national level the United States maintains a genetic bank at the National Seed Storage Laboratory in Fort Collins, Colorado. Here, in controlled storage rooms, seeds from around the world are stored in a half million air-tight metal cans for long-term preservation. In addition there is an active plant exploration program and crop-specific collections at regional plant introduction stations. The apples are at Geneva, N.Y., the wheats at Pullman, Washington; the corn at Ames, Iowa, and the national potato collection at Sturgeon Bay, Wisconsin.

In gene banks seeds are stored under conditions which insure long-term viability and accessibility. But gene banks are vulnerable to human error and to equipment failure resulting in loss of seed viability. One of the drawbacks of seed storage is the fact that just one error can wipe out the entire collection.

The second method, preservation on site, should be a priority in international agricultural and environmental management. Because plant populations, rather than entire ecosystems, are being preserved, *in situ* preservation need not encompass large amounts of land. Maintaining native agriculture in as few as 100 carefully chosen strips of 4 by 8 kilometers (approximately 2 by 4 miles) around the world might be a start. The agriculturalists would be, in es-

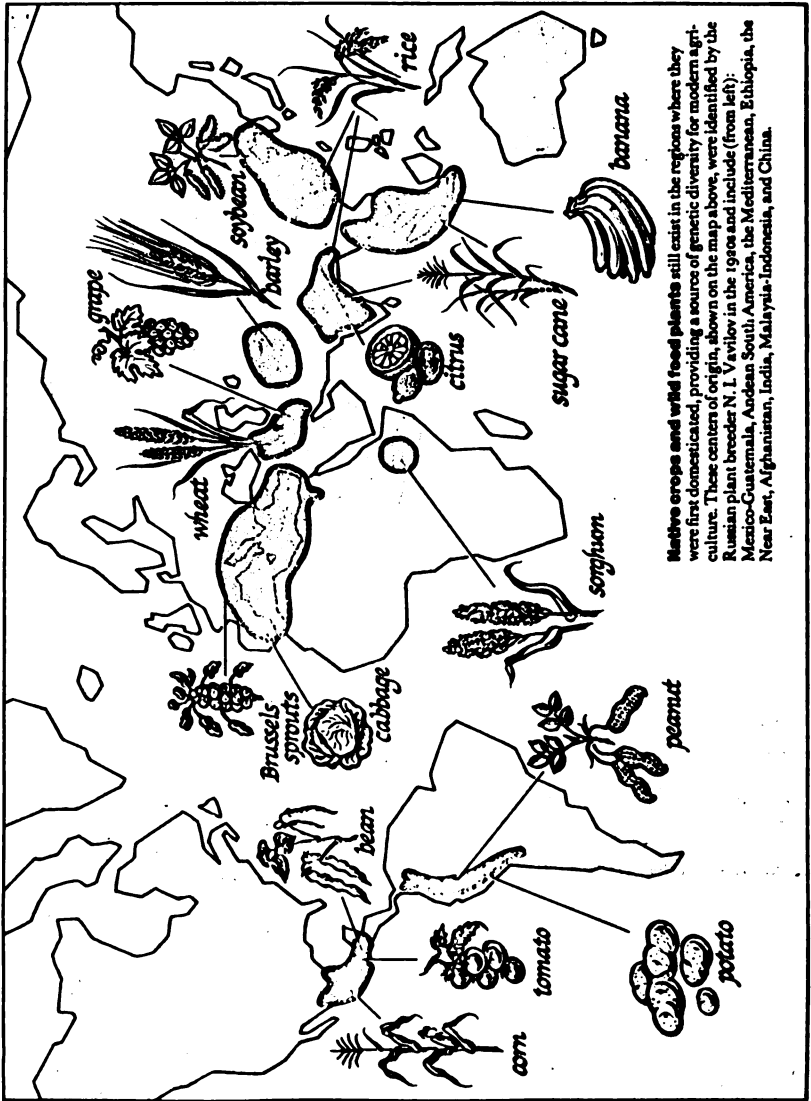
sence, curators of living collections where genetically diverse plantings and hybridization with the wild relatives would continue. A number of national governments have already set aside areas of natural beauty or of historical significance. Equally, these genetic resource areas could be set aside to preserve crop plant diversity and be administered by an international body such as the U.N. Food and Agricultural Organization.

To reach our current production of food crops, we have already cleared most arable land. The course conventional agriculture has taken is more intensified land-use, more pesticides, herbicides, chemical fertilizers, water and specialized uniform seed. This method has worked in the industrialized nations because we have been able to breed new, more resistant and productive strains and to afford a heavy investment in agricultural technology. But the sudden increase in the cost of energy in the past two years indicates that there are limits to the use of energy (pesticides, herbicides and fertilizers). The threatening loss of genetic resources demands increased attention to the conservation, evaluation and open distribution of crop plant germplasm.

Our increased influence over the environment to maintain an abundance of food in the face of an increasing population has decreased our margin for error. It is clearly in our interest to maintain a strong agricultural research program to insure that massive losses arising from the genetic vulnerability of our major crops do not take place.

To fail to anticipate change is to be ill-prepared for the future. The kind of agriculture we are now practicing requires the preservation of germplasm diversity if future breeding is to meet the ever changing threats of pathogens, insects, and environments and a dwindling genetic heritage. ■

Garrison Wilkes is an associate professor of biology at University of Massachusetts in Boston and has a long standing interest in germplasm resources.



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July 16, 1977

Senator John Culver
 Chairman,
 Sub-committee on Resource Protection
 Committee on Environment and Public Works
 United State Senate
 Washington, D.C. 20510

Dear Senator Culver:

It is with pleasure that I was informed of the Congressional Oversight Hearings on the Endangered Species Act of 1973. This is a most important piece of legislation and I am gratified that the Congress is continuing to evaluate progress made and possible modifications that might improve its effectiveness.

If you would permit me, I would like to address myself here to one specific implication of the act, namely, its impact on investigation of the organisms considered to be threatened or endangered.

To indicate my background, I note that I am a professional biologist, now a Professor of Zoology of the Division of Biological Sciences, The University of Michigan in Ann Arbor, and former Chairman of the Department of Zoology at this institution. This year I am president of the American Society of Zoologists, and I have served as consultant and staff member of several natural history museums and public (non-profit) zoological parks here and abroad.

One point that has been admitted in numerous preliminary hearings is our limited knowledge regarding most of the organisms actually or potentially affected by the legislation: Their ranges, physiological and reproductive response to environmental alterations, and interactions with other organisms are poorly understood. Yet, one counterproductive bi-product of the legislation has been to hinder or at least to make very much more expensive the further accumulation of such information. The existing legislation, and administrative attitudes and practices, include procedures that require excessive, very specific and inflexible paper work and import requirements. They almost force one into employing commercial brokers and into buying specimens from dealers rather than importing a few individuals required for specific work directly from colleagues at foreign institutions. Not only does this increase the cost to the individual, and more often to the federal or state institution, museum, or university sponsoring the work, but it also increases transit time and with this, the chance of loss of precisely those animals which we are attempting to protect.

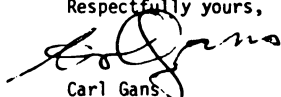
The issue has been of some small concern in my personal research. More important has been its implication for the investigations being carried out by many colleagues. These are often the colleagues who have done the field work documenting that many species were indeed endangered, and who have in some cases been able to propose control mechanisms that are meeting with some success. Much of their work has been supported by the Federal Government through diverse agencies such as the National Science Foundation. To the extent that such studies are now being hampered, the funds appropriated by the Congress and provided by the tax payers are being expended inefficiently. We feel that this enforcement pattern of the legislation induces an inflexible situation that precludes the timely responses demanded by the accelerating pace of environmental destruction. And, we should constantly remain aware that in most cases it is habitat destruction or alteration that pushes species to and over the brink of extinction.

The tenure of legislation and enforcement has been to impose the risk of personal liability for precisely those people traditionally most concerned with protection. It now has the additional effect that some colleagues are becoming fearful about any work being carried out on wild animals. Responsible officials of regulatory agencies refuse to indicate whether a particular action makes an investigator liable for prosecution.

Let me conclude by expressing the opinion that we as yet understand only a very small portion of the problems we face. Many of the organisms with which we share this globe are hardly as spectacular as a tiger or a panda, yet they may be even more significant in terms of their biological roles in the stability of ecosystems, as "barometers" of dangerous pollution, or in terms of eventual contributions to man's knowledge. Unless it remains possible to study such creatures without increased financial, and indeed psychological cost, many of them will become extinct before we can know more than that they once existed. We will certainly lack the information on which successful protection schemes may be based and by which they may be evaluated.

I hope that the government will work closely with the scientific community and its societies towards a satisfactory solution to this problem. I remain at your disposal and thanking you for your attention I am,

Respectfully yours,



Carl Gans
Professor of Zoology

P.S. I apologize for writing a letter rather than applying to testify in person. However, I will be out of the country on the times of your hearing. I shall appreciate your having your staff call me if I can be of any assistance upon my return.

STATEMENT OF THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION
ON THE ENDANGERED SPECIES ACT OF 1973, BEFORE THE RESOURCE
PROTECTION SUBCOMMITTEE OF THE UNITED STATES SENATE COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS.
AUGUST 12, 1977

Gentlemen, my name is Joseph S. Ives. I am the Environmental Counsel for the National Rural Electric Cooperative Association (NRECA). NRECA is the national organization which represents nearly 1000 REA financed, non-profit cooperative electric systems which deliver power to approximately 25 million people in 2600 out of 3100 counties in the United States. These consumer-owned electric systems serve nearly 75 percent of the total area of the United States which, for the most part, is sparsely populated, containing only about 10 percent of the total population. I appreciate the opportunity to express the views of NRECA.

The National Rural Electric Cooperative Association is so deeply concerned about the enforcement of the Endangered Species Act of 1973 that the membership during their 1977 Annual Meeting in Atlanta, Georgia adopted the following resolution.

TVA TELlico DAM

Under recent ruling of the courts, the TVA Tellico Dam project in Tennessee has been halted due to the discovery of a small fish known as the snail darter, when then was placed on the endangered species list. The Tellico Dam Project has been completed; however, much needed hydro-power generating capacity has been denied the people in the region due to the ruling of the courts relating to this discovery.

We urge that the Congress pass legislation to exempt the snail darter fish from impeding the filling of the Tellico Dam Reservoir for much needed hydroelectric power generation and other benefits for the people in the region.

We further urge that the Congress amend the Endangered Species Act to exempt species or sub-species whose preservation provides little or no benefits but will prevent the vital storage of water, hydroelectric development and power plant construction.

Although this resolution specifically mentioned the halting of a major hydro project which is directly beneficial to all residents of the TVA service area and indirectly beneficial to all citizens of the United States, the membership expressed in this resolution their broad based fears that the act as written could be used by many anti-growth and anti-development advocates to seriously damage the nation's energy and water supplies.

The cooperatively owned generating and transmission systems, who are members of NRECA, are also concerned that the implementation of the Act will impede or prevent the construction of vitally needed generating stations or add substantially to their cost. At the recent spring meeting of the Generation and Transmission (G&T) Managers Association on April 24 - 26, 1977, the G&T Managers recommended that the NRECA Board of Directors work with other impacted industries to amend the Endangered Species Act of 1973 so that it will be applied in a reasonable manner with some consideration to the cost of protecting a specie and the benefits of preserving the specie. They also recommended that the protection of the act be limited to those species which are economically, aesthetically or ecologically useful or important.

The fear of harassment by no-growth advocates has been reinforced by the tremendous number of petitions to list plants and animals as endangered

or threatened species since the Act was passed. In 1973, only 109 American species were listed as threatened or endangered, but by 1976 over 24,000 plants and animals were suggested for listing in the endangered or threatened categories. Although many of these species have no proven economic, aesthetic, or ecological importance, the fact that a species of this type has been listed or suggested for listing may delay or halt projects which are beneficial to the nation in general or large groups of citizens in particular. In the case of power plant and dam construction, these delays can and do impose a substantial economic loss directly on consumers and indirectly on the nation.

Of particular concern is the rapidity with which additional species have been added to these lists, the criteria used to classify specimens as distinct species, and the relative unproven importance of many species. Recently, over 50 additions have been made to the list and these additions include plants, butterflies, crustaceans, and snails. In the southeastern United States, a large number of river snails have been identified as endangered or threatened species. By classifying species such as these on the basis of insignificant variations, it would probably be possible to find a "rare species" in almost any river or tract of land in the United States. Using these "rare species" and the inflexible requirements of the Endangered Species Act, a single disgruntled person can delay projects which are necessary in the public interest and, as in the case of the TVA Tellico Dam, there is no mechanism within the law to resolve this conflict. In our opinion, the fact that a dispute of this type requires an Act of Congress to resolve indicates that the legislation is deficient and requires amendment.

Many have suggested that the Act does not require amendment as administrative procedures can be used to resolve most conflicts. This may be the case

if there is more than one habitat for a species, but there are many insignificant sub-species which have adapted to a specific river or area such that their habitat becomes unique. In this case, only an act of Congress can resolve this conflict as the law as now on the books allows no exception where a project, no matter how important to many people, jeopardizes the existence of that species. While this may not be much of a burden now as there are only a few species listed, there are now over 24,000 proposed for listing of which 2,000 are currently being considered. If conflicts develop in proportion to the number of species listed, an already overburdened Congress will be called on more and more often to legislate on conflicts which could be settled at the administrative level.

NRECA does not recommend that broad exemptions be granted in any amendment to any major category of species or to any specific categories of construction projects. However, we do recommend that the Act be amended in such a fashion that listings under the Act are restricted to species which are ecologically, economically, and aesthetically useful or important. We also recommend that Congress establish criteria or procedures in the amendment for classifying species on the basis of significant variations and characteristics so that insignificant varieties of fish, such as the snail darter, will not have the same degree of protection as the American bald eagle. We further recommend that the Congress establish some mechanism for balancing the marginal costs and the marginal benefits of preserving a specie in the event that a conflict arises between the use of a critical habitat by an endangered species and the need for modifying the habitat by construction projects which are in the public interest.

In conclusion, NRECA respectfully suggests that the Endangered Species Act of 1973, be amended as soon as possible so that some flexibility is incorporated into the Act and a mechanism is provided so that an administrative

decision, rather than an act of Congress, can resolve conflicts which may develop.

We thank you very much for permitting us to express our opinion on this important act.

Testimony of Wayne C. Cobb, Assistant Director of the Natural Resources Council of Maine to the Resource/Conservation Subcommittee of the Senate Committee on Public Works, submitted August 4, 1977

Subject: The Endangered Species Act and the Furbish lousewort

The Natural Resources Council of Maine is a statewide, non-profit citizen's environmental organization of over 2,800 members and about 100 affiliate groups. Since 1959, the NRC has stood opposed to the Dickey-Lincoln hydroelectric project on the St. John River in northern Maine. We believe that the losses of productive timberland, abundant fish and wildlife resources, and wilderness values that would result from the construction of Dickey-Lincoln far outweigh the benefits of the project as estimated by the U. S. Army Corps of Engineers.

In the summer of 1976, the Corps of Engineers announced the rediscovery of the Furbish lousewort, *Pedicularis furbishiae*, near the site of the proposed Dickey dam. The last recorded sighting of the plant, a member of the snapdragon family, had been in 1946. Since that time it had been believed extinct. With the lousewort's rediscovery in 1976, the Office of Endangered Species, Department of the Interior, listed the plant among the first group of plants nominated for "endangered" status.

Section 7 of the Endangered Species Act directs that no federal activity shall jeopardize the continued existence of endangered or threatened species, or result in the destruction or modification of a species' critical habitat. Studies now underway by the Corps of Engineers will determine whether the lousewort's habitat is totally within the Dickey impoundment area, and whether transplanting to a "safe" area is feasible. These studies may indicate that, in fact, no "conflict" between the lousewort and Dickey-Lincoln exists.

The position of the Natural Resources Council of Maine is that, despite our strong and long-held opposition to Dickey-Lincoln, we do not see the existence of the lousewort in the project area as an immediate threat to Dickey-Lincoln, nor do we ourselves wish to make the lousewort an issue at this time.

A draft environmental impact statement is due to be released by the Corps of Engineers later this month, to be followed by public hearings. The Natural Resources Council will review carefully the impact statement, and prepare and submit testimony at the proper time. We anticipate that our testimony in opposition to Dickey-Lincoln will be vigorous and will include the following points:

- The St. John River, which is characterized by extremely low flow-rates in Summer and Fall, is not well suited to hydroelectric development. Power would be generated two or three hours per day.

- The upper St. John River basin is a unique wild region, whose natural beauty and abundant wildlife are regional and national assets.

- The river is gaining popularity as a recreational resource for the Northeast, thereby generating revenue for the State of Maine.

- The Dickey-Lincoln project has questionable economic benefits for Maine. When the loss of productive timberland is considered, the project is seen as a net loss for the State.

We believe that the Endangered Species Act may be sufficiently flexible to allow both the lousewort and the Dickey-Lincoln dams to exist. Furthermore, we recognize the authority of Congress to exempt any federal project from the Act, should such an exemption be deemed in the public interest.

The "conflict" between the Furbish lousewort and Dickey-Lincoln is not a consequential public issue in Maine at this time. The decision to build or not to build the Dickey-Lincoln project will undoubtedly be based on considerations more important in the public eye than the lousewort. Therefore, we urge that any such presumed conflict not be the basis for efforts to weaken the Endangered Species Act.

Attachment: NRC Bulletin - "Furbish lousewort: A Threat to Dickey?"

DICKEY-LINCOLN:



A MAINE PERSPECTIVE

A Special Bulletin of the
Natural Resources Council of Maine

Wayne Cobb, Editor No. 3 May, 1977

Furbish Lousewort: A Threat to Dickey?

Opposition to the Dickey-Lincoln project has been a constant issue for the Natural Resources Council since the organization's inception in 1959. For many years it has been clear that the loss of timber resources, valued at more than \$8 million annually to the State of Maine, as compared to the proposed benefits of the project, strongly suggests that the St. John River Valley be preserved in its natural state. This, combined with the ecological and recreational losses of the area due to flooding, as well as the existence of reasonable alternatives to Dickey-Lincoln, has convinced the NRC that construction of the dams would be a grave and irreversible mistake. Discovery of numerous rare and unique plants in the St. John Valley has simply strengthened the sentiment that Dickey-Lincoln be stopped.

Lousewort Rediscovered

In the summer of 1976, while conducting an environmental impact study of the St. John River Valley under contract with the Army Corps of Engineers, Dr. Charles Richards, Professor of Botany at the University of Maine at Orono, rediscovered the Furbish lousewort. The last recorded sighting of this plant had been in 1946 at Fort Kent, Maine. Since that time it had been believed extinct. A member of the snapdragon family, the plant stands two to three feet tall, with deeply cut, fernlike leaves and elongated clusters of yellow flowers.

The plant was originally discovered nearly one hundred years ago by Kate Furbish, an avid Maine botanist who searched woods, rivers, valleys, mountain tops, and roadsides for more than 70 years, collecting specimens and making intricate watercolors of plants. Travelling through Aroostook County, she came upon the unfamiliar plant in Van Buren on the banks of the St. John River. She recognized it as being of the genus commonly called lousewort, part of the snapdragon family. Furbish recorded the plant as growing "three feet high on the bank of the river where the



Kate Furbish, Maine Botanist (1834-1931)

water trickled down its sides." Soon botanists concluded that this species grew nowhere else in the world beyond this stretch of the St. John River Valley, and in 1882 Sereno Watson, a Harvard botanist, named the plant for Kate Furbish--*Pedicularis furbishiae*, or Furbish lousewort.

With its rediscovery in 1976, the Office of Endangered Species in Washington listed the Furbish lousewort among the first group of plants nominated for "endangered" status.

The Endangered Species Act

Originally passed in 1966 and revised in 1973, the Endangered Species Act provides protection for species in "immediate danger" of extinction ("endangered species"), as well as for those "likely to become extinct" ("threatened species"). The Act gives recognition to the biological significance of the growing number of species that, unfortunately, are becoming rare, endangered, or threatened, and provides a means of protecting them so they may continue and evolve as nature intended.

The Endangered Species List presently includes almost 200 animal species. The proposed inclusion of plants on the list marks an important milestone in the preservation of genetic diversity. Plants, many of them seemingly useless, are part of the biological diversity that maintains healthy ecological conditions for all earthly life. As stated in the Report on Endangered and Threatened Plant Species of the United States to the Congress of the United States of America by the Secretary, Smithsonian Institution, 94th Congress, 1st Session, House Document No. 94-51 (1975),

"Many species of rare, endangered, and threatened plants grow in severe or unusual habitats and often possess unique qualities that make them particularly valuable to man: they help provide diversity and greater ecological stability, they stock unstable and unusual habitats, they are sources of medicines and chemicals, they are bio-indicators of minerals and metal ores, they possess potential value for food crops and horticultural use, and they provide man with sources of aesthetic value. Loss of any species of plant represents an irretrievable loss of unique genetic material or germ plasm that cannot be duplicated and narrows man's future options for his own use of the environment."

The Act authorizes the Secretaries of the Interior and Commerce to acquire land and water rights to preserve and propagate endangered species, and sets fines of up to \$10,000 for taking or dealing in endangered species or products made from them. Most importantly, Section 7 of the Act directs that no federal activity shall jeopardize the continued existence of endangered or threatened species, or result in the destruction or modification of a species' "critical habitat"--the area essential to the survival of any endangered species. It is this section of the Act that has created such a hullabaloo over

the Furbish lousewort.

Will the Lousewort Hold Up Dickey-Lincoln?

Dr. Richards rediscovered the lousewort in the township of Allagash, directly upstream from the site of, and within the area to be flooded by, the Dickey dam. In his survey he sighted approximately 40 of the plants. It is believed that many other specimens of the plant in this river valley have been eradicated by land leveling and the dumping of waste into the river.

While the lousewort was initially scheduled for classification as an endangered species in December, 1976, its acceptance, like that of the other plants on the list, is not yet final. According to John Spinks, Chief of the Office of Endangered Species in Washington, the delay is attributable to the need to create a set of regulations and policies concerning endangered plants.

When the presently proposed list of endangered species of plants becomes final, which should occur within the next few months, the lousewort, because of its precarious location upstream from the dam site, will be protected by Section 7 of the Endangered Species Act. Section 7 required the U. S. Army Corps of Engineers, the federal agency responsible for the Dickey-Lincoln project, to notify the U. S. Fish and Wildlife Service of the threatened plant's existence. After that notification, the plant was proposed for the Endangered Species List.

Paul Nickerson of the Northeast Region, U. S. Fish and Wildlife Service does not feel, however, that the Furbish lousewort will necessarily prevent construction of the Dickey-Lincoln dams. Nickerson, at the February meeting of Governor Longley's Dickey-Lincoln Review Committee, noted that although the Fish and Wildlife Service has the power to place the lousewort on the endangered list, the ultimate decision on whether the Endangered Species Act will hold up construction of Dickey-Lincoln lies with the U. S. Congress. "They passed the law and they may make exceptions to it if they wish."

Amendments May Weaken Act

Attesting to the validity of this observation is the submission since January, 1977 of numerous bills in Congress to amend the Endangered Species Act, because of endangered plants or animals jeopardizing specific water resources projects. What is at stake is a threat to one of the sacred cows of Congress--public works--and lawmakers now find themselves in the uncomfortable position of having supported both habitat preservation and public works, two popular and sometimes contradictory federal programs.

Since the Act's inception many public works projects have been delayed or modified to avoid wiping out endangered species. But the first real conflict came in January of this year, when the U. S. Sixth District Court of Appeals halted work on the \$116 million Tellico Dam project on the Little Tennessee River, after \$100 million had already been spent. The project was halted in order to protect the critical habitat of the snail-

...darter, a three-inch minnow. Several amendments to the Act have since been proposed. One seeks to exempt from the Act any public works project already under construction. Another looks to simply exempt the Tellico Dam from the Act, while a third requires assessments of economic consequences before an area is declared a critical habitat. Congressional oversight hearings on the entire Act are expected to take place early this summer.

The implications of these amendments and the upcoming hearings are considerable. Legislators are trying to open up the Act to allow more leeway for public works projects to go through without having to meet the endangered species regulations. Behind the legislators are the agencies defending the projects—agencies that have tremendous pull with the legislators.



The Furbish lousewort—Photograph of the original watercolor by Kate Furbish, c. 1880

One of the major objections to the Act is that it is inflexible, and does not allow for any compromise or balance. Commenting on the flexibility of the Endangered Species Act, Zygmunt Plater of the Wayne State University Law School, a leading supporter of endangered species conservation, noted that if ever amendments to the Act are to be considered, "it should be on future evidence of statutory intractability, that does not presently appear to exist." He stated that at present the court system is the only governmental arena which does not have discretionary flexibility under the Act, and that the responsibility of balancing all the complexities of biological science and Congressional policy does properly exist in the agencies which implement

the Congressional mandate and, as a last resort, in Congress.

Plater continued to note that the past four years have seen more than 4,500 agency consultations with the Fish and Wildlife Service concerning potential project conflicts with the Act, and that of those only three have gone into the courts. Addressing the question of the timing of Congressional action, Plater stated, "there appears to be no need to rush into amendments to the Act until such time as it proves to produce unreasonable effects. On the record to date the Act appears to be workable as well as useful. Its practicality will be furthered by formal regulations now being issued." In the light of the 4,500 Fish and Wildlife consultations to date, he commented that the Tellico case indicates that inflexibility results "from agency reluctance to comply with protection procedures for natural populations. Even so, in that protracted case it appears that the Act does not require a choice of drastic extremes, but instead presents reasonable and beneficial options for design modifications which maximize economic and public values as well as protecting species and habitat. That is a desirable precedent to establish for the Act."

Meanwhile, Back with the Corps...

In its Environmental Impact Statement, the Corps must be cognizant of rare species. Accordingly, last summer Dr. Richards spent one month in the St. John River Valley searching for numerous rare species believed to exist there. Most of his work was done with a helicopter, landing at intermittent spots along the river banks. It was during that month that the lousewort was found. Since that time the Corps has been in constant contact with the Fish and Wildlife Service to determine how they should proceed this summer.

With the rediscovery of the lousewort, the Corps of Engineers has several responsibilities it must meet. Richard Dyer, the system project manager for Dickey-Lincoln, says the Corps will focus its energy in two areas. First, it intends to do extensive survey work looking for louseworts along the St. John and other rivers. Dyer expects the Corps to survey over 150 miles of the riverbanks over a span of two months. Included within this 150 miles are portions of Aroostook, Fish and Allagash Rivers, as well as several rivers in New Brunswick.

Why is the Corps spending time looking for the lousewort in New Brunswick? John Spinks of the CES postulates that the Corps is seeking to discover numerous louseworts north of the St. John and thus establish the lousewort as a circumpolar plant. Should the plant be found in quantity, then its habitat would be considered to be fairly secure and its classification as endangered in the United States would be removed. For although the Endangered Species Act applies only to the territorial United States, when a plant occurring rarely in the U. S. is found in abundance in a foreign country, it is generally accepted that the plant is not threatened with extinction and that its occurrence in the U. S. is merely indicative of an extreme of the plant's range.

Field surveys for other possibly endangered

species, including the Josselyn sedge, which is believed to be endemic to the impoundment area, are secondary to the Corps' examination of the housewort, and according to Richard Dyer, will be done only "when the opportunity arises."

Dr. A. E. Brower, a retired biologist for the State of Maine who has done extensive field work in the St. John Valley area, is not pleased about the Corps' summer plans. He feels that the Corps has not spent adequate time in the area searching for plants. "Two weeks to look at 135,000 acres is simply not enough," said Brower. In addition, he noted that the field work last summer did not begin until early July, when the blossoms of many early spring flowers had already disappeared. Commenting on the reservoir area as a whole, Brower called it "a unique, outstanding ecological area, unequaled elsewhere in New England for its concentration of desirable and rare plants. Many of these do not occur or are rare elsewhere in the United States," Brower stated. "To destroy such an area would be a botanical catastrophe for which this generation would never be forgiven."

Nickerson, however, feels differently, and says "it is not urgent to look for other species; we have the housewort." He feels that classification of one plant on the Endangered Species List is adequate to halt the project, and that to look for other species in this area at this time should not be a priority.

The second aspect of the Corps' summer work will be a physiological study of the housewort itself. The Corps will examine its seeding, flowering and pollination mechanisms, its growth and its life cycle requirements to determine whether the plant can be successfully transplanted.

It is questionable, however, whether transplanting the flower would satisfy the Act. As stated in the Smithsonian Institution Report, "Cultivation or artificial propagation, even in the best botanical gardens, is not an acceptable alternative to *in situ* perpetuation of species. Preservation of a species' future cannot be assured in this way. Artificial propagation is a last resort and is done always with the ultimate objective of reestablishing the species in its natural habitat."

Dr. Brower too doubts that the housewort can be successfully transplanted. "We do not even know if the housewort is a parasite or engaged in a symbiotic relationship with another plant, and we could not even begin to measure the success of a transplant for at least ten years." What are the risks to the few remaining plants should should half, or even a few of them be transplanted? Dyer is not too concerned with this and says he hopes to be able to transplant houseworts and thus secure their existence, regardless of whether Dickey-Lincoln is built.

With the Furbish housewort's classification as endangered expected within the next few months, Dyer hopes the Corps' work this summer will lead to an adequate determination of the plant's critical habitat and possibly expedite the transplanting process. Whether or not the plant can actually be transplanted must be determined by the Secretary of the Interior, however, and experience with species transplants in the past has been limited. It has often been the case that

conflict situations have been solved through arbitration, such as in South Carolina, where plans for forest clearcutting were altered to protect a rare swamp bird. With the Dickey-Lincoln project, however, there is little room for negotiation and compromise.

Reasons are Many for Opposing Dickey-Lincoln

In the case of Dickey-Lincoln there are many reasons other than the housewort why the dams should not be built.

The St. John River Valley is considered to be a unique wild region, complete with some of the best whitewater canoeing in the northeastern United States, far surpassing the Allagash Waterway for its magnificent rapids. The water that would back up to fill the two lakes at Dickey-Lincoln would destroy at least 86,000 acres of this irreplaceable resource. Fishermen would lose one of the most outstanding brook trout fisheries of the country and gain far less in return, while hunters would lose to the reservoir 17,600 acres of deer yard supporting 2,200 white-tailed deer.

As for jobs created by the project, most would be short term, lasting only through the construction period. Most importantly, there are other reasonable alternatives to Dickey-Lincoln that will meet its objectives and provide substantially more employment than would "boom and bust" Dickey-Lincoln. One that has been suggested is spending the money needed to build Dickey-Lincoln on an insulation program for buildings in New England. The energy saved through such a program would be more than twice that which the dams could produce. Also, the growing trend toward energy conservation, the use of solar, wind, and other alternatives, as well as "peak-load pricing", may make Dickey-Lincoln unnecessary.

Indeed, the NRC's original opposition to Dickey-Lincoln began long before the Furbish housewort was discovered, because of these and other objectionable aspects of the project. That opposition will persist regardless of the fate of the flower that Kate Furbish discovered and which events have made famous. Nevertheless, the NRC has petitioned the Department of the Interior to place both the Furbish housewort and the Josselyn sedge on the Endangered Species List, and to investigate the status of eighteen other species located in the area.

by Barbara Milus



NATURAL RESOURCES COUNCIL
51 Chapel Street
Augusta, Maine 04330

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address correction requested

ALTERNATIVES TO COMPLETION OF THE TELlico DAM
TESTIMONY OF WILLIAM L. RUSSELL
FOR THE LITTLE TENNESSEE RIVER ALLIANCE, 130 TABOR ROAD, OAK RIDGE, TENNESSEE 37830
BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
July 21, 1977

Mr. Chairman and distinguished members of this Committee, my name is William L. Russell, and I sincerely appreciate this opportunity to present my views on the Endangered Species Act and the Tennessee Valley Authority's enjoined Tellico Project on the Little Tennessee River.

I am a geneticist by profession and a conservationist by avocation. In both capacities I applaud the Endangered Species Act. The profound importance of this legislation was emphasized in a quotation printed in the June 24, 1977 issue of "Science," the publication of the American Association for the Advancement of Science. If the whole history of the planet Earth is represented by a time span of one year, then conditions suitable for life have existed for approximately the latter half of that year. Mammals appeared in large numbers shortly before Christmas, and man emerged at 5 minutes before midnight on New Year's Eve. The period since 1600 A.D., when man caused the extinction of the Dodo, amounts to three seconds on our time scale, and the last quarter of a century, when the disappearance of species really began to escalate, represents only one sixth of a second — a twinkling of an eye in evolutionary time. In this context the Endangered Species Act is indeed timely and important.

Since I happened to be in Washington this week, serving on another committee, I was asked to speak to you today on behalf of the Little Tennessee

River Alliance. I am a member of the Board of Directors of one of the organizations belonging to this Alliance. The Alliance is a coalition of many organizations. It includes the Tennessee Conservation League (which is the oldest large conservation organization in Tennessee, and the one officially affiliated with the National Wildlife Federation). Other members of the Alliance are the Tennessee Endangered Species Committee, the Sierra Club, the Eastern Band of the Cherokee Nation, Smoky Mountain Hiking Club, Tennessee Audubon Council, Trout Unlimited, Tennessee Citizens for Wilderness Planning, Tennessee Environmental Council and the Tennessee Outdoor Writers' Association.

The Alliance was formed this year after the 6th Circuit Court of Appeals ruled that TVA must halt all work on its Tellico Project, because it would violate the Endangered Species Act. The purpose of the Alliance was to try to find a positive, constructive solution to this conflict between TVA and the law. For years many of the conservation organizations had felt that the Tellico Dam was not justified economically or environmentally. Bringing the views of the various groups together, the Alliance concluded that many of the benefits of the Tellico Project, plus additional ones, could be achieved without the dam and reservoir. A preliminary investigation by the Alliance indicated that it was highly likely that, even at this late date, a modification of the project that would avoid closing the dam might not be an economic loss.

I regret very much that I have not been able to attend the hearings earlier than a few minutes ago, but I presume the Committee has already heard adequate testimony on the many very real benefits that would be lost if the dam is closed: the loss of prime agricultural land, historical and

archeological sites, the loss of a valuable recreational resource, the loss, along with the snail darter, of one of the Southeast's last big river environments, and so forth. Because of these, the Alliance felt that a well-planned agricultural, tourist and industrial development, without the dam, might prove more economically sound, as well as far less environmentally destructive, than the reservoir project. Accordingly, the Alliance recommended that Congress approve a study of such alternatives. I believe the first suggestion was that the study be conducted by the Departments of Interior and Agriculture and by TVA. As you know, the General Accounting Office subsequently started a study which will provide useful information along these lines. It is gratifying that some of the conclusions already reported seem to be indicating that the Alliance's constructive suggestions may really be viable alternatives.

The Alliance felt that if the alternatives were viable, TVA would have a golden opportunity, having already acquired the land, to fulfill its mission for the welfare of the people by showing what it could do with an imaginative multipurpose development associated with a river instead of a reservoir.

We hope that TVA will still see it this way, that it will take this bold shift in direction that will, at the same time, resolve the conflict with the Endangered Species Act.

There is a widespread feeling, shared, as you know, by some Members of Congress, that although TVA is still to be congratulated on many of the things it is doing today, its attachment to dam building has gotten out of hand. Unless there is a change in TVA's attitude, the Little Tennessee River

Alliance respectfully submits for your consideration the view that the problem the Committee is facing today is not a problem with the Endangered Species Act, but a problem with TVA. We sincerely hope TVA will responsively and responsibly help you to solve it with no harm to the Endangered Species Act and no harm to the endangered species.

STATEMENT BY THE SOUTHERN FOREST PRODUCTS ASSOCIATION
BEFORE THE RESOURCE PROTECTION SUBCOMMITTEE
COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

July 19, 1977

The Southern Forest Products Association is an organization of forest products manufacturers with operations in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Oklahoma, Tennessee, Texas and Virginia. SFPA member mills account for almost half the total Southern Pine lumber output and also produce substantial quantities of plywood and pulpwood.

During the last 15 years, forest products manufacture has increased dramatically in the South. Southern Pine lumber output rose by 50 percent during that period from one-fifth to one-third of U. S. domestic softwood lumber production. Southern Pine plywood production, which began in 1963, has soared to the extent that it now represents 40 percent of the nation's total softwood plywood output. The South also accounts for two-thirds of the nation's total pulpwood output. Pulpwood production in the region has quadrupled since World War II.

These trends are expected to continue. The Forest Service of the U. S. Department of Agriculture predicts that, by the year 2000, the South will become the main source of wood products for the nation as a whole and will have to double current output to meet anticipated year 2000 demand.

This necessitates corresponding increases in timber growth, primarily on the small nonindustrial forestland ownerships which embrace 73 percent of the region's 192 million acres of commercial forestland.

Timber growth on this enormous aggregate of small woodlots is currently less than half of potential, largely because the owners cannot afford the costs and risks of long term forestry investments. In an effort to correct the situation, a growing national effort is underway to strengthen the forestry incentives of the small landowners.

Participants in this undertaking involve a broad array of public and private interests, including the forest products industry. Forest products companies are greatly accelerating their programs of landowner assistance and strongly supported passage of a law in 1973, which created the Federal Forestry Incentives Program. This law authorizes the investment of \$25 million in Federal funds annually for cost sharing to help small landowners begin tree planting and timber stand improvement practices.

The overall objective of these and other related programs is to double timber growth on the small nonindustrial private ownerships, which nationwide embrace 300 million of 500 million acres of commercial forestland, by the year 2000. Success in the endeavor will assure adequate supplies of timber to meet anticipated future population needs, and will also bring substantial environmental benefits, including improved wildlife habitat, soil and water protection.

To achieve those goals, further strengthening of the forestry incentives of small landowners is essential in areas such as taxation and financial assistance. It is equally important to eliminate present and potential disincentives in Federal and state laws and regulatory policies.

Such is the basis for this Association's concern with the Endangered Species Act of 1973 and its implementation. While the objectives of this law are commendable, it imposes no constraints on unreasonable or irresponsible implementation that could deny private landowners the opportunity to practice forestry.

A main thrust of the law is to prohibit or restrict Federally funded activities on private lands designated by the U.S. Fish and Wildlife Service as habitats of animal and plant species classified by the Service as endangered or threatened. Such restrictions obviously could apply to forest management practices by small landowners partially funded by FIP or other Federal private forestry programs, including those relating to forest fire control.

The quantity and variety of species to be classified as endangered and threatened, the extent of habitat and the nature of restrictions are yet to be determined. But already there is disturbing evidence of the adverse potentials arising from the lack of legal constraints on overzealous implementation not in the public interest. For example, the June 1976 proposal by the Fish and Wildlife Service that 1776 plant species be classified as endangered. Many of these plants are located in the South and their designated habitat could conceivably cover

substantial acreage of commercial forestland. Questions were raised as to the methods of selection and on whether the species were, in fact, endangered or just rare. While only a handful of these plant species have thus far been classified as endangered, the size of the proposed list and the extent of geographic coverage indicate the potential danger to the timber supply base.

There are other disturbing signs. In Tennessee, for example, an endangered species of fish--the snail darter--has halted a multi-million dollar completed dam project on the Little Tennessee River. A large dredging project on the Minnesota River was temporarily halted due to the possibility that an endangered species of clam might be affected. In Maine, an endangered snap dragon--the furbish lousewort--threatens to halt the \$600 million Dickey-Lincoln hydropower project on the St. John River.

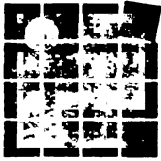
The real and implied threats to energy sources, the timber supply base and other areas vital to the public interest, clearly indicate that the Endangered Species Act should be amended to preclude the danger of economic hardship or chaos from overzealous implementation.

The Association offers the following suggestions on amendments:

- 1) While it is obviously desirable to protect and perpetuate endangered species of animals and plants, this should be done in a way that will not present an overriding, unacceptable hardship to Man. Language should be added to the Act to that affect.

- 2) Another amendment should specify that the threat of extinction--not rarity -- be the basis for proposed inclusions in the endangered and threatened lists. Also, supporting data for such proposals should be made available to the public along with precise information on the geographical location of critical habitat. Sufficient time should be allowed for comments on proposals by interested parties and public hearings should be held for each proposed listing in each locality and state where the critical habitat of the proposed species has been identified to exist.
- 3) The law should be amended to require that proposals protecting alleged endangered species be accompanied by Environmental Impact Statements as called for by the National Environmental Policy Act. Inflation impact statements should also be required to determine the full economic impact of actions to preserve species from extinction. There should also be a cost-benefit analysis to determine all economic, social and institutional factors involved in the listing and in any actions recommended to preserve the species.
- 4) Private landowners should not be required to abide by provisions of the law unless they wish to do so. If they choose to manage land to protect endangered species provision should be made for reimbursement for economic losses that may be incurred. There also should be provision for land exchange in cases where economic usage of private land is denied.
- 5) Another amendment should clarify the intent of that section of the Act which prevents "taking" of listed animal species on all ownerships.

This makes it illegal to "harass" listed animal species on both public and private lands. It is possible that "take" could be construed to prevent normal land management activities on private lands, if it could be shown that those activities might disturb individuals of a listed species. This section should be amended to preclude constraint of legitimate economic activities which have little or no effect on the welfare of the species.



Graduate Program in Ecology

COLLEGE OF
LIBERAL ARTS

The University of Tennessee
Knoxville 37916

(615) 974-3065

July 14, 1977

The Association of Southeastern Biologists is a professional organization of career biologists engaged in academic and applied practice in the field of biology and related areas. It currently comprises approximately 1500 members in the states of Maryland, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Florida, Mississippi and Louisiana.

The Association is professionally concerned with the accurate accumulation, analysis and dissemination of the factual products of scientific research; with the application of scientific knowledge to the practical and legal needs of our government system; and with the maintenance of natural ecosystems which serve the needs of natural scientists and the public at large.

It is the intent of the Endangered Species Act of 1973 to protect natural habitats identified as unique by the presence of endangered species.

The Association affirms the scientific and public importance of preserving endangered species and protecting habitats critical to their survival. The snail darter, Percina (Imostoma) sp., and its habitat qualify for protection under the Endangered Species Act of 1973.

The Association believes that the Tennessee Valley Authority, as well as private citizens should be required to comply with the law.

Sincerely,

J. Frank McCormick
Director
Graduate Program in Ecology

JFM/tt



THE UNIVERSITY OF TENNESSEE
DEPARTMENT OF ANTHROPOLOGY
South Stadium Hall
Knoxville, Tennessee 37916

Telephone
615 974-4408

July 19, 1977

The Honorable John C. Culver
Chairman, Subcommittee on
Resource Protection
The United States Senate
Washington, DC 20510

Dear Senator Culver:

As Head of the Department of Anthropology at the University of Tennessee, I should like you and the members of the Subcommittee to know that the appearance of Dr. Jeff Chapman, Research Assistant Professor in the department which I head, does not have the sanction of the University of Tennessee or this department. He appears before you purely in an individual capacity, and his views are not the views of the department or the University of Tennessee.

I would also like to state that the ten-year archaeological research program in the Tellico Project area has been notably successful and has been adequately funded by TVA and the National Park Service. TVA has cooperated fully in other significant ways, and the extensive excavations which have been conducted have produced a great deal of valuable information and material which would not otherwise have been possible.

Sincerely yours,

William M. Bass, Head
Department of Anthropology
The University of Tennessee
Knoxville

WMB:ab

THE FRANK H. McCLUNG MUSEUM

THE UNIVERSITY OF TENNESSEE, KNOXVILLE 37916

July 20, 1977

The Honorable John C. Culver
Chairman, Subcommittee on
Resource Protection
The United States Senate
Washington, D.C. 20510

Dear Senator Culver:

It has come to my attention that Dr. Jefferson Chapman, a Research Assistant Professor in the Department of Anthropology of The University of Tennessee, Knoxville, intends to appear before your Subcommittee in opposition to completion of TVA's Tellico Dam and Reservoir Project, which has been substantially completed on the lower 33 miles of the Little Tennessee River. Since the inception of the project in 1967, I have served as Principal Investigator of a very extensive archaeological survey and research program which has been carried on in the project area, and Dr. Chapman has participated in some phases of the program along with a number of other archaeologists working under my direction. I am Director of the McClung Museum at the University and am a Professor of Anthropology in that department which I formerly headed. The appearance of Dr. Chapman is not sanctioned by the McClung Museum or by me as Principal Investigator of the Tellico Archaeological Project. He is appearing simply as a concerned citizen, and the views he expresses may not coincide with my own.

Because of the Tellico project, TVA has provided the University with research funds in the approximate amount of \$960,000, and the National Park Service has added an additional \$497,000. This has made it possible to plan and carry out an orderly and very extensive program of archaeological survey and investigation of the significant resources in the project area. As a result, a great volume of archaeological and historical information as well as artifactual material has been recovered and new insight has been gained into the prehistoric and historic Indian occupation of the area. This has been particularly true regarding the history of the Overhill Cherokees, a number of whose towns were once located in this section of the Little Tennessee River Valley, although other Overhill Cherokee towns existed beyond the limits of the project area, and some of these sites remain for future investigation.

Of principal significance in evaluating the results of this program is the fact that much of the information and material which has been recovered was unavailable when the land was in private ownership. It was being lost and destroyed by erosion, cultivation, theft, natural deterioration, and improper handling by unscientifically trained persons. If the project

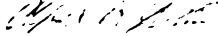
should not be completed and the land should be returned to private ownership, it is believed that this process of loss and destruction would be resumed, doubtless on an accelerated basis since our work has pinpointed the location of sites which formerly were known only in a general way. Indeed, "pot hunters" and looters have been a problem during the actual conduct of our work. The Citico site is a case in point, and I mention it since it alone among the principal sites might be adversely affected by reservoir fluctuation if impoundment occurs. Following the completion of our work performed during the years of 1967 and 1968 and before possession of the property was obtained by TVA, the site was extensively looted by amateur relic hunters. This has continued to some degree after TVA obtained possession of the property despite efforts of its public safety officers to drive the looters from the site. This extensive damage to the site, when coupled with the fact that we have obtained an adequate sampling of the material and information which it contained, greatly lessens the concern which I might otherwise have over the possible effects of the proposed reservoir.

There are a significant number of people in the field of archaeology who regard inundation by a reservoir as preferable to continued destruction of sites by looting and natural forces. Although the effects of inundation are not fully known and an area has been provided to test these effects in the Tellico project, it is well established that certain materials essential to archaeological research such as carbonized matter, stone, flint, and soil stains survive after thousands of years following inundation by water. The Early Archaic and Early Woodland sites investigated by Dr. Chapman are examples. These such materials were discovered under 10 to 15 feet of alluvial deposit, laid down by repeated flooding over a time span of 9,500 years. In short, inundation is not inevitably destruction, and may be considered preferable to the damage and destruction of sites which occurs from looting, cultivation, and erosion. This is particularly true of the later cultural occupations such as the Dallas phase of the Mississippian period and the still later occupation by the Cherokees. These occupations are not deeply buried and are evident on the surface.

It is generally accepted that the recovery of a 10 percent sampling of material from a given site is sufficient for a scientific interpretation of the occupation or occupations which once existed there. Fully adequate samples of 10 percent or more have been recovered from such major sites as Citico, Chota, Toqua, Tomotley, etc. One hundred percent site excavation is unnecessary from a scientific viewpoint, and cannot be justified from the standpoint of policy where public funds are being expended.

The archaeological research program in Tellico has been adequately funded. Indeed, the guidelines contained in the Moss-Bennett Bill have been substantially exceeded, and I know of no other river basin project in the United States which has received so extensive--or expensive--an investigation. Funding provided because of the project has enabled us to make significant discoveries and the recovery of information and artifacts has provided us with an adequate insight into the aboriginal occupation of the project area. Although additional research could be performed, the completion of the project and the filling of the reservoir would not deprive the scientific community or the public in general of the opportunity of gaining an adequate understanding of that occupation. The means for that understanding have already been achieved.

Sincerely,



Dr. A. K. Guthe
Principal Investigator
Tellico Archaeological Project

Director, McClung Museum
and Professor of Anthropology
The University of Tennessee
Knoxville, Tennessee



TENNESSEE RIVER VALLEY ASSOCIATION

City Hall Tower • P. O. Box 1248 • Decatur, Alabama 35602
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July 18, 1977

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The Honorable John C. Culver

United States Senate

Chairman, Subcommittee on Resource Protection

Senate Committee on Environment and Public Works

Washington, D.C. 20510

Dear Sir:

On behalf of the officers, directors and membership of this association, it will be greatly appreciated if you will include the following comments in your hearing record covering consideration of the Endangered Species Act of 1973.

We urge that changes be written into this Act that will revise the Act so that it will be more flexible in order to achieve a balanced development of economic growth as well as environmental protection. The welfare of all of our citizens must be considered within the framework of this Act so that sustained economic growth can be realized. The Act currently frustrates these goals and allows extremism for environmental concerns to hamper, delay and create confusion with worthwhile and needed projects.

Your cooperation in including this request in the record of the hearing will be greatly appreciated.

Very truly yours,

J. Frank Keown

J. Frank Keown
Executive Vice President

JFK:jc

CC: Board of Directors
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TENNESSEE-TOMBIGBEE Waterway Development Authority

GLOVER WILKINS, Administrator

POST OFFICE DRAWER 671 • TELEPHONE 601/328-3286
COLUMBUS, MISSISSIPPI 39701

July 22, 1977

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Honorable John Culver
Chairman, Subcommittee on Resource Protection
Senate Committee on Environment and Public Works
United States Senate
Washington, D. C. 20510

Dear Senator Culver:

I would appreciate very much having the enclosed statement submitted for the record with regard to your hearings on the Endangered Species Act.

Your cooperation in this regard is appreciated.

With best regards and good wishes, I am

Sincerely,

GLOVER WILKINS
Administrator

GM/jw

Enclosure

STATEMENT BY
GLOVER WILKINS, ADMINISTRATOR
TENNESSEE-TOMBIGBEE WATERWAY DEVELOPMENT AUTHORITY
BEFORE THE SENATE SUBCOMMITTEE ON RESOURCE PROTECTION
WASHINGTON, D. C.
JULY 22, 1977

Mr. Chairman, Honorable Members of the Subcommittee, my name is Glover Wilkins, Administrator of the Tennessee-Tombigbee Waterway Development Authority, a five-state compact composed of the States of Alabama, Mississippi, Florida, Kentucky and Tennessee. It is my great pleasure to submit a statement for the record in the interest of the Tennessee-Tombigbee Waterway Authority.

The Tennessee-Tombigbee Waterway is the first waterway developed under the National Environmental Policy Act (NEPA). Its initial funding came almost simultaneously with the Nation's increasing environmental awareness and recognition of the importance of preserving our resources.

Developers of the Tennessee-Tombigbee Waterway are closely attuned to concern for environmental quality. Examples of this concern we have shown is in the more than five major structural changes in the originally designed waterway such as placing the lock and dam above Plymouth Bluff and lowering the crest of the lock and dam at Gainesville, Alabama as well as changing the canal concept to a chain of lakes. As a result, the Waterway will offer many environmental advantages.

Although several years away from completion, this Waterway is already serving as an economic stimulus for a previously severely economic depressed region of the United States -- giving this area of the South economic confidence where, previously, little existed.

This era of increasing economic stability would be severely weakened by any major setbacks in water resource development.

The Endangered Species Act, when carried beyond its original intent, could bring water resources development to a halt. Too stringent environmental regulations, in addition to erecting new legal, political and public opinion obstacles, also drive up the costs of developing and maintaining a strong natural waterway system.

Development of waterway projects contribute immensely to the future welfare of citizens in this nation by providing much needed jobs, electric energy, water supply, flood protection and recreation. Such projects also stimulate commerce, creating new employment opportunities.

In matters relating to economic growth balanced against environmental needs, emphasis should be focused on real environmental issues and alternatives with all citizens having a voice.

The Tennessee-Tombigbee Waterway Development Authority represents a broad spectrum of citizens from a five-state area who are vitally concerned and whose very livelihoods are closely linked to continued water resource development.

At the same time, our citizens believe environmental quality and sustained growth can be simultaneously attained with wise, careful and thoughtful planning. Legislation must allow for responsible balancing of all factors relevant to man's environment including his economic and social needs, as well as important ecological concerns.

We urge that the Endangered Species Act of 1973 be amended to provide for balancing conservation interests with the social and economic needs of the people and to allow for completion and use of projects that are already under construction.

MacFARLAND, COLLEY, BLANK and JACK

LON P. MacFARLAND
JERRY C. COLLEY
EDWARD C. BLANK II
BILLY C. JACK

ATTORNEYS-AT-LAW
MIDDLE TENNESSEE BANK BUILDING
COLUMBIA, TENNESSEE 38401

TELEPHONE 266-3210

July 19, 1977

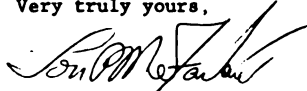
Senator John C. Culver
2327 Dirksen Building
Washington, D. C.

Senator Malcolm Wallop
344 Russell Building
Washington, D. C.

Dear Senator Culver and
Senator Wallop:

We understand that your Committee is holding hearings on the Endangered Species Act. I am Attorney for Upper Duck River Development Association, Upper Duck River Agency and Upper Duck River Planning Commission and on behalf of them I desire to submit the attached statement which I would appreciate the Committee considering.

Very truly yours,



Lon P. MacFarland

LPM:ds

cc: Senator Howard Baker Attn: Mr. Jim Range
Senator James Sasser
Hon. Robin L. Beard
Hon. Albert Gore
Executive Director of Senate Committee on Environment
and Public Works (Subcommittee on Resource Protection)

HONORABLE MEMBERS OF SENATE COMMITTEE ON ENVIRONMENT
AND PUBLIC WORKS
(SUBCOMMITTEE ON RESOURCE PROTECTION)

STATEMENT IN REGARD TO PROPOSED REVISIONS
OF THE ENDANGERED SPECIES ACT AND
EXEMPTION FROM THE ACT OF ONGOING PROJECTS

BY LON P. MCAFARLAND
FOR
UPPER DUCK RIVER DEVELOPMENT ASSOCIATION
UPPER DUCK RIVER AGENCY
UPPER DUCK RIVER PLANNING COMMISSION

July 19, 1977

STATEMENT OF LON P. MACFARLAND ON BEHALF OF THE UPPER DUCK RIVER
DEVELOPMENT ASSOCIATION, THE UPPER DUCK RIVER AGENCY AND
THE UPPER DUCK RIVER PLANNING COMMISSION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

My name is Lon P. MacFarland. I am attorney for the Upper Duck River Development Agency. I have served in this capacity without fee for many years. I speak also for the agency Upper Duck River Development Association and its planning commission. The agency and the commission are official state agencies created to further this project. The association is a voluntary association representing many of the 130,000 citizens of Bedford County, Coffee County, Marshall County and Maury County, Tennessee, through which counties the Duck River flows on its way to the Tennessee River.

At various times I have testified before the Senate Public Works Subcommittee on Appropriations and the House Public Works Subcommittee on Appropriations in support of this project. We are advised of the hearings now being conducted on the subject of the Endangered Species Act, USC Title 16, Section 1531 et seq. This Act was passed in 1973, long after the project started, and it allows the Secretary of Interior, after consulting with affected States, interested parties and organizations, to determine endangered species, threatened species and declare critical habitat. I respectfully suggest that Congress when it passed the Act did not realize its potential scope or breadth. I do not believe that Congress intended in protecting endangered species to go as far as the Act has been interpreted by the Courts to go. The act defines "species" as including subspecies, lesser taxa, and unique endemic populations, and any organism for which it is possible to gather meaningful data, with minor exceptions, qualify for protection. To some there is no place to draw the line on what merits protection. The Endangered Species Act has not been coordinated with the National Environmental Policy Act. For instance, in the case of the Duck River project in the litigation under NEPA, consideration was given as to endangered species but notwithstanding this a hurried listing of endangered species has been made without adequate consideration as to whether or not the species listed are of any consequence. There is confusion as to whether or not before the listing of a species is made an Environmental Impact Statement is required. It seems logical that since an EIS was required before a project could be started, an EIS should be required before an endangered species is listed and a critical habitat declared since the effect of such an action would unquestionably be a 'substantial federal action' affecting the human environment and may well require the stopping of the project.

We do not oppose the idea of protecting endangered species. We submit, however, that the Act is completely inflexible and should be amended to give the decision makers more discretion to weigh the benefits of the project against the alleged benefits of declaring a species endangered or threatened. The Endangered Species Act has farseeing ecological goals but vague outlines as to how these goals should be measured as against other vital goals such as flood control, recreation, water supply and the improvement of water quality.

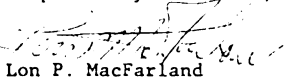
I submit that the Endangered Species Act as it presently exists and has been interpreted by the Court, does not provide for any

reasonable weighing or balancing of other needs which the Congress rightfully considers in making appropriations. The Act as it now exists can be and is being used to stop worthwhile, ongoing projects, the goals of which projects have been found by Congress to have great benefit. No matter how useful a project, in the present situation, the Endangered Species Act is being and can be used to stop worthwhile projects, the completion of which would be very beneficial to the public. On almost any project, Tellico, the Duck River, the Birksen Office Building, necessary hydro and nuclear plants, some diligent scientist could find some subspecies or lesser taxa of no significant usefulness and obtain the listing of this subspecies or lesser taxa on the endangered or threatened species list and obtain a declaration of a critical habitat, thereby putting the project, no matter how worthwhile, at the complete mercy of someone bent on either protecting the insignificant species or taxa, or someone, for other reasons who is opposed to the project.

The Act must be given some balance and there must be some mechanism for weighing the benefits of protecting the species against other benefits of the project. This is not now provided for. The stopping of important projects because of the listing of an insignificant species is unduly expensive and costly in both money and delay.

We respectfully suggest (1) that projects started before enactment of the Endangered Species Act should be exempt from the Act and (2) that there should be significant revisions of the Act to provide for balance in weighing benefits of the project against any disbenefits the project might have in endangering or threatening species. In this connection we submit that at present quick judgments based on insignificant data are being made in the listing of threatened or endangered species. The Act should be amended to provide a more detailed and comprehensive examination as to whether or not the species exist elsewhere and is in fact endangered or not.

Respectfully submitted,



Lon P. MacFarland

July 19, 1977

THE WILDLIFE SOCIETY

7101 WISCONSIN AVENUE, N.W.

SUITE 611

WASHINGTON, D. C. 20014



FRED G. EVENDEN

Executive Director

MICHAEL D. ZAGATA

Field Director

PHONE: (301) 986-8700

July 27, 1977

The Honorable John C. Culver
 Chairman
 Subcommittee on Resource Protection
 U.S. Senate Committee on Environment & Public Works
 Washington, DC 20510

Dear Senator Culver:

Your Subcommittee's current consideration of the Endangered Species Act (PL 93-205) is an important one to those of us serving in the wildlife profession.

The Wildlife Society has established a formal position with respect to Endangered Species which I am pleased to enclose for your information.

In addition, we believe the Act has sound objectives which should be retained as enacted, including Section 7. The secret to the Act's success rests in a beneficial level of reasonable moderation in its application. Although there have been a few experiences where the Act may have seemed counterproductive, it does serve its purposes. Information available at this time indicates that the vast majority of conflicts arising from the Endangered Species Act have been resolved through reasonable deliberation. Social and economic factors must be considered in the decision making process of carrying out the Act. Each case must be determined separately on its own set of conditions.

The Wildlife Society will be pleased to assist you and your Committee in continuing to support the basic tenets of the Endangered Species Act.

Respectfully yours,


 Fred G. Evenden
 Executive Director

FGE/lam

cc: H. Glascock
 J. Gottschalk
 T. Kimball
 D. Poole
 W. Towell
 M. Zagata
 Council, TWS
 Section and Chapters, TWS

Enclosure

Route 1
Augusta, Wisconsin 54722
July 19, 1977

Senator John Culver
Room 4204
Dirksen Senate Office Building
Washington, D. C. 20510

Attention: Ms. Kathy Korpon

Dear Ms. Korpon:

I fully support the concept of constructive conservation of endangered species, and am actively contributing to this conservation effort through my own captive propagation programs.

The current licensing and permit requirements (including the **CSSP** program) for interstate sale and shipment of healthy non-native species are totally counter-productive in terms of preserving and propagating rare and endangered species of birds and animals.

My views for the Senate Environment and Public Works Committee hearings on the Endangered Species Act would be to respectfully request that all licensing and permit requirements for interstate sale be suspended until some more enlightened enforcement policies can be developed.

Sincerely,


Leland R. Wolfgang
Marsh Winds Game Farm

NATIONAL ASSOCIATION OF STATE FORESTERS

M. GENE HERTEL, President
Des Moines, Iowa
WALLACE F. CUSTARD, Vice President
Charlottesville, Virginia
JAMES D. VERVILLE, Sec'y.-Treas.
Pierre, South Dakota



1977 Executive Committee

C. W. MOODY, Immediate Past-Pres.
Montgomery, Alabama
MAX J. YOUNG, Member at Large
Nashville, Tennessee

July 28, 1977
6768 Baron Road
Big Lean, Va.

Senator John C. Culver
1327 Dirksen Senate Building
Washington, D. C. 20510

Dear Senator Culver:

This refers to Oregon State Forester Schroeder's letter dated June 18, 1977 relating to the July 19-22 oversight hearings on the Endangered Species Act.

While Mr. Schroeder did not specify that his letter was for the record, it was intended that it be included in the record of the hearings. We hope that it can be included. A copy is enclosed.

Sincerely,

Boyd L. Rasmussen
National Association of State Foresters



Forestry Department

OFFICE OF STATE FORESTER

2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2560

June 28, 1977

The Honorable John C. Culver
United States Senator
1327 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Culver:

It is our understanding that oversight hearings on the Endangered Species Act are scheduled for July 19 through 21 by the Resource Protection Subcommittee of the Senate Environmental and Public Works Committee. The concerns recently focused on the Endangered Species Act by the events of the Tellico Dam project are of great interest to this department for administrative and technical reasons. We would like to take this opportunity to express our views on the subject as a public agency vitally concerned with the management of natural resources, specifically forest lands in the State of Oregon.

In our opinion, there can be no serious doubt that the Endangered Species Act is very essential legislation and we have consistently supported efforts to preserve endangered species and their habitat through administration of the Oregon Forest Practices Act and through management on state-owned forest lands in Oregon. However, we do have concerns regarding the procedures involved in the administration of the Act and our access as a state agency to the decision making process. These concerns are:

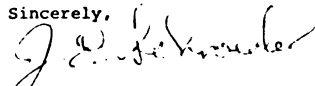
1. Designation of critical habitat sometimes appears to be excessive and somewhat capricious.
2. The accumulative socio-economic impact of prohibiting essential human activities in areas of critical habitat for the large number of currently proposed species is staggering to the mind. At this time, we see no provisions for balancing social and economic costs with the proposed social and economic benefits of preservation, and
3. We have great difficulty in keeping abreast of the species being proposed for the "threatened or endangered" list.

In the process of the oversight hearings, we urge the Resource Protection Subcommittee to consider the following recommendations:

1. More specifically define the criteria for key concepts such as critical habitat, threatened and endangered;
2. Recognize the need for consistent and dependable interpretation of the Act and subordinate regulations which directly influence State activities related to threatened or endangered species;
3. Require clear demonstration of endangerment and the need for protection before species are listed;
4. Recognize the need to balance the socio-economic benefits and the socio-economic costs in applying protective regulation to critical habitat;
5. Provide for educational programs on currently listed species and their habitat to be made available to appropriate segments of the public.

We assure you that the forestry community in Oregon has an inherent interest in the management of endangered species and their habitat and the Oregon State Forestry Department will assist in any meaningful way to help achieve the goals of the Endangered Species Act.

Sincerely,



J. E. SCHROEDER,
State Forester

JES:NS:afc

cc: State Department of Fish and Wildlife
Office of the Governor
• U.S. Forest Service, Region 6
Bureau of Land Management, Portland Office
Oregon Congressional Delegation

Endangered Plants

FORESTRY DEPARTMENT

OFFICE OF STATE FORESTER

2600 STATE STREET • SALEM, OREGON • 97310 • Phone 378-2560

August 17, 1976

Mr. Lynn A. Greenwalt, Director
U. S. Fish & Wildlife Service
P. O. Box 19183
Washington, D. C. 20036

Dear Mr. Greenwalt:

I would like to express my concern regarding the 1700 species recently proposed for endangered or threatened status.

The Oregon State Forestry Department is responsible for administration of the Oregon Forest Practices Act which speaks directly to preservation of such listed species that may be adversely affected by forest operations. As a public agency involved in forest resource management and protective law enforcement activities, we fully support the objectives of the Endangered Species Act of 1973, but we feel that any added listing and its impact on existing activities, needs to be discussed openly and understood clearly before final acceptance.

The review process associated with the recently proposed listing has not provided adequate time to evaluate whether the species are truly endangered, nor has it provided adequate time to assess the impact the addition of 1700 species might have on forestry in Oregon.

I would therefore like to suggest:

- 1) That a six month period be established for public comment, and
- 2) That a series of hearings be held across the nation providing an opportunity for affected persons to hear, discuss, and understand the issues.

We realize that the expense in holding such meetings would be substantial in terms of time and effort, but surely the issues involved are worthy of discussion by all of the affected citizens.

Thank you for your consideration in this matter.

Very truly yours,

J. E. Schroeder,
State Forester

JES:NTS:lh

1



WAYNE STATE UNIVERSITY

LAW SCHOOL

DETROIT, MICHIGAN 48202

December 15, 1977

Hon. John Culver, Chairman
 Subcommittee on Resource Protection
 344 Russell Senate Office Building
 Washington, D.C. 20510

Dear Senator Culver:

On behalf of citizen groups supporting the Endangered Species Act in general, and the specific case of the snail darter in the Little Tennessee River, I am pleased to respond to the questions you presented.

The enclosed materials cover the issues raised. It has been our experience in this controversy that the Authority, for its part, consistently utilizes highly selective phrasings of its facts, in order to support its arguments for completion of this last impoundment. If and when such issues arise we would be pleased to provide further analysis and data, for there literally is no TVA argument to which there is not a full and factual rebuttal. This last such river valley is quite simply more valuable for its present assets than for impoundment.

While our responses here are primarily concerned with the Tellico case study, we have also enclosed comments on the Endangered Species Act oversight review in general.

Many thanks for your past and future efforts in reviewing these important national conservation issues.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "Zygmunt J.B. Plater".

Zygmunt J.B. Plater

for The Little Tennessee River Alliance
 Tennessee Endangered Species Committee
 Environmental Policy Center
 Friends of the Earth, Inc.
 American Rivers Conservation Council
 Trout Unlimited, Inc.

ZBP:bak

Enclosures

PUBLIC INTEREST GROUPS' RESPONSES TO SENATE SUBCOMMITTEE QUESTIONS

1. During your appearance before the Subcommittee, you stated that impoundment of the Little Tennessee River is not necessary for the industrial and economic development of the Valley. What leads you to this conclusion? Please document your statement.

There is a basic distinction between a river-based economic development program for the Valley and the original impoundment development plan.

As a river-based economic development program, the Valley today possesses physical assets that directly indicate more profitable and beneficial uses for the project if the dam is not closed than if the Valley is flooded out. The profitability of alternative economic development, of course, is not the reason for having and complying with the Endangered Species Act. Congress's policy of preventing as far as possible the knowing extinction of any endangered species, is itself important and may sometimes lead to economic tradeoffs. In Tellico, the economic values of protecting the species and its Valley habitat are a pleasant coincidence. They make this important national case study an opportunity for sound conservation, and for rational improvement of the original marginal economic development plan noted below.

The original impoundment benefit projection, as detailed below, is as marginal on its original terms as the dam is small in proportion to total project assets.

Feasibility and profitability of river-based economic development

Tennessee's two major industries are agriculture and tourism. It is these two industries which present the strongest economic potential for the Valley if the Tellico project is used to develop them instead of flooding them out. The project now owns 38,000 acres including:

- 25,500 agricultural acres of the highest classes of prime farmland (TVA's EIS at I-1-31; GAO Report, 26-27)
- 16 major historical sites with major tourist potential all but two to be wholly or partially destroyed (GAO Report, 22-24)
- the major access route between the western entrance of the Smoky Mountain National Park (9,000,000 visitors each year) and the North-South connector, Interstate 75. (See Dept. of Interior and GAO comments, GAO Report 51-52, 21-22)

Quite simply, TVA has never considered development of these assets, perhaps because they render the dam irrelevant. The agency considered only dam alternatives, no action, and scenic management for the river (EIS, I-1-46). As GAO found, TVA's review "did not include other benefits which might also be derived from a developed river valley such as agriculture, historical, cultural and industrial development, fish and wildlife, shoreline development and redevelopment benefits" (Report at 17).

Interestingly, TVA admitted to the GAO that the agricultural lands alone could produce revenues up to \$6.4 million per year, (other experts said three times that much) while their own impoundment was claimed to produce only \$3.7 million! (TVA, quoted in GAO Report at 26, 28; EIS I-1-49).

At this stage of the project, with the dam portion practically complete, the valley's agricultural and tourist resources are basic to the profitable development of the river. The Hanson Report will undoubtedly develop the proposals more specifically, but briefly they will probably include two aspects:

Agriculture

The prime lands in the Valley should be developed for agriculture that will return maximum revenues to the local economies of Blount and Monroe Counties. This means diversified holdings, via longterm leasebacks or otherwise, by small farm operations from the local area. This form of management is permitted under the TVA Act and can draw upon financial grants-in-aid from the Carter Administration's program for support to small farmers.

Tourism

Tourist development should be planned in conjunction with the 9,000,000 annual visitorship of the adjacent Smoky Mountain National Park. If the Cherokee and pre-historic sites along the river are developed, instead of destroyed, they create a major tourist route from Interstate 75 (3 miles west of Tellico and from the Tellico Parkway,) along the river to the western entrance to the Park and its circle-the-Smokies highway. The sites include Fort Loudon (French and Indian War), Tuskegee (birthplace of Sequoyah), Tennessee (the village which named the state), Chota (the Cherokee Jerusalem), Citico, Tommotley, and three prehistoric sites with the oldest record of continuous human settlement in America. Cherokee history is already a major part of the Park's tourist attraction. Its development as a Cherokee Trail on this prime access route could carry literally hundreds of thousands of tourists through the Blount and Monroe County areas on their way to and from the Park. The special virtue of this economic potential is that it is a bird in the hand: the tourists are already there, the route and the sites are already there but would be lost under the mudflats and water of an impoundment.

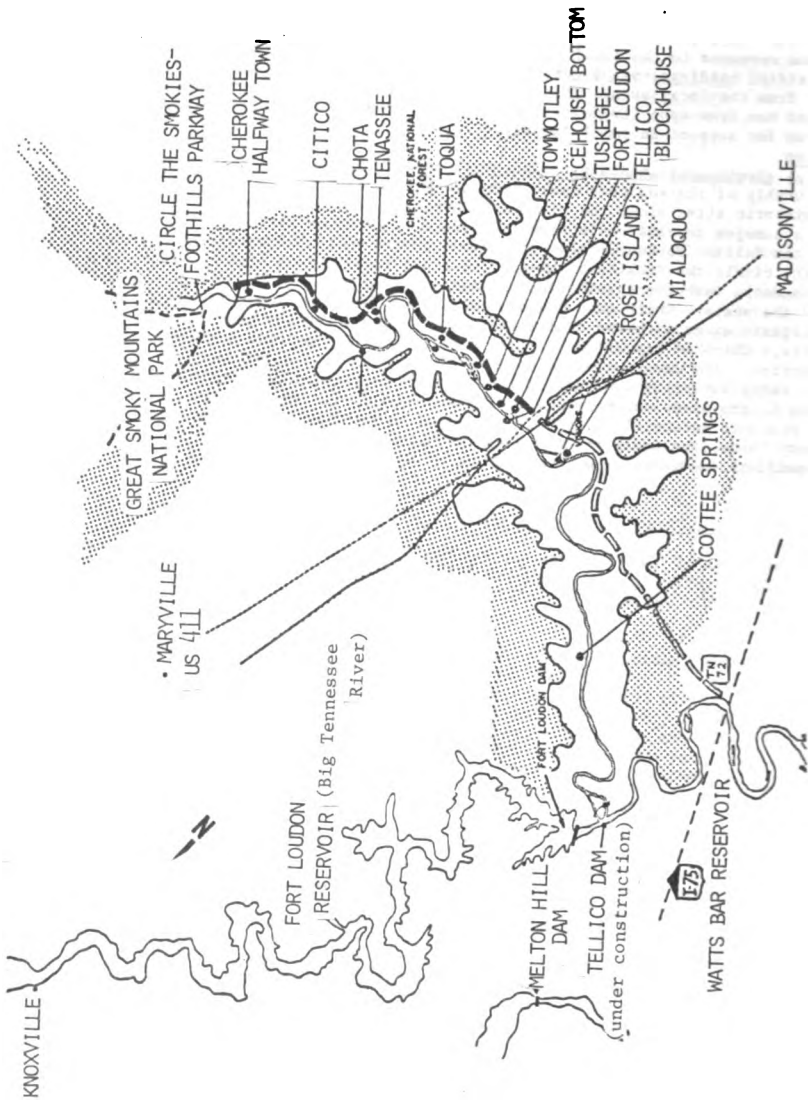




FIGURE ONE
Tellico Project Area on the Little Tennessee River
Showing major Cherokee historic sites and a
Cherokee trail tourist route 
existing route 72 

Other development

The failure to consider alternate river-based economic development programs is continued in the case of industrial development and recreational development.

The primary claimed project benefits are industrial development and recreation.

Industrial development does not appear to require a lake. The now defunct Timberlake New Town industrial community which was the basis of industrial projections was patterned after the Minnesota Experimental City project which had no such reservoir. The river valley now has an ample water supply for future industrial needs, and is well served by major railroad and highway transport systems.

Thousands of acres of industrial sites already exist along the other 67 lakes in the Tennessee Valley area, including more than 1100 acres which have lain undeveloped for close to 15 years on Melton Hill reservoir, less than 6 miles from Tellico. This indicates (1) that the mere presence of a reservoir does not draw industry, and (2) since many industries have located in Tennessee in recent years without reservoir access, that barge transport is not a requirement for development.

The collapse of the Timberlake development indicates that industrial growth in the Tellico Project is a conjectural matter. If industrial development will come, however, the House subcommittee's requested alternatives study shows that more sites with industrial potential will exist without the impoundment than with it. See Hanson Report.

TVA's industrial projections appear to be far less likely than the agricultural and tourist development they would eliminate. The construction of Timberlake New Town was to be subsidized by Congress under the "infrastructure grant" program, and to be built by the Boeing Corporation (See TVA Timberlake EIS). Timberlake collapsed in 1974-75 when Congress withdrew the subsidy program and Boeing withdrew saying the industrial development project was economically infeasible.

Experience indicates that river industrial sites possess all the industrial features available from a lake except barge transport, and in the light of the region's excellent railroad, highway and water availability, barge transport appears irrelevant. Note the experience of Melton Hill barge usage:

(see Figure II, next page)

FIGURE II

TRAFFIC THROUGH TENNESSEE RIVER LOCKS (IN 1000 TONS)												
YEAR	CENTURY	MCNAMES	WILSON	SMELLER	QUINTEVILLE	MCNAMES	CINCINNATI	DAVIS	MELTON	ST. LOUIS	YEAR	YEAR
1900	366	233	226	480	643	67	30	30		86	1900	1900
1905	515	400	492	641	849	347	251	10		8	1905	1905
1910	492	403	423	335	471	451	71	10		15	1910	1910
1915	745	704	721	624	752	615	300	170		170	1915	1915
1920	850	830	845	808	901	844	473	467		267	1920	1920
1925	1,093	1,084	1,006	814	909	753	476	373		365	1925	1925
1930	1,198	1,163	1,093	1,011	890	749	373	476		473	1930	1930
1935	1,245	1,108	932	1,053	944	730	349	412		721	1935	1935
1940	2,309	1,389	1,220	1,084	840	853	498	401		835	1940	1940
1945	2,644	1,310	1,380	1,333	1,283	1,048	733	613		953	1945	1945
1950	2,887	2,359	2,119	2,029	1,792	1,450	682	775		745	1950	1950
1955	3,000	3,405	2,370	2,265	1,943	1,670	712	615		630	1955	1955
1960	3,284	3,210	2,470	2,357	2,084	1,913	1,044	972		513	1960	1960
1965	4,093	3,617	2,715	2,335	2,130	1,823	1,027	1,044		396	1965	1965
1970	4,870	3,106	3,244	3,029	2,759	1,901	1,100	924		461	1970	1970
1975	5,712	3,214	3,460	3,090	2,873	2,105	1,040	923		403	1975	1975
1980	6,541	4,830	3,466	3,088	3,191	2,351	1,040	923		440	1980	1980
1985	5,359	3,549	4,117	3,081	2,665	1,576	726	337		301	1985	1985
1990	5,328	3,414	3,819	3,825	2,934	1,863	692	480		417	1990	1990
1995	5,563	3,196	3,502	3,097	2,419	1,724	462	267		453	1995	1995
2000	5,480	3,313	3,190	3,168	2,479	1,439	585	310		191	2000	2000
2005	10,390	6,354	5,542	5,056	2,776	1,567	595	323		423	2005	2005
2010	12,380	6,230	4,312	3,809	2,874	1,817	694	203		242	2010	2010
2015	13,308	6,357	4,705	4,379	2,741	1,887	1,239	301		174	2015	2015
2020	14,351	6,068	5,801	5,427	3,480	2,739	1,330	373		170	2020	2020
2025	15,330	6,020	6,002	6,307	4,407	2,726	1,248	368		193	2025	2025
2030	17,330	6,443	7,218	6,923	4,956	2,809	1,086	531		267	2030	2030
2035	17,371	6,230	6,490	6,203	4,334	3,104	1,084	460		353	2035	2035
2040	19,512	6,708	6,793	6,561	4,300	3,442	1,040	340		314	2040	2040
2045	18,931	6,118	6,718	6,659	4,419	3,572	967	375		233	2045	2045
2050	21,821	6,759	6,903	6,658	4,198	3,448	1,113	375		239	2050	2050

U.S. ARMY CORPS OF ENGINEERS, 1975.

[Total 1975 traffic through TVA locks was 28,316,539 tons. Note also that barge traffic has been declining in the eastern Tennessee (right-hand) impoundments since the 1950's.] Barge traffic does not seem to be a major industrial advantage.

Recreational management does not require a lake, and indeed would be more attractive without: the river is now a prime and unique flowing water recreation resource, as has been noted. The current heavy use for canoeing, trout-fishing, family float trips, etc., however, has taken place in the absence of any developed recreational management. The addition of launching facilities, float trip franchises, supply shops, hiking and horseback trails, camping areas, etc. would substantially increase recreational usage. And this is the last such river in the state.

Existing lakes already provide more flat-water impoundment per capita for Tennessee than any other place on earth. The flowing water of the Little Tennessee Valley has become unique.

The National Park Service has supported the advantages of developing the river Valley with a recreational component. (GAO Report at 51)

Sum

The Valley today has extremely valuable assets, that would be destroyed by an impoundment plan that doesn't.

The consideration of an alternate river-based economic development program is the bottom line for a rational public decision on the survival of the darter and its Valley habitat. With such a comparison, as GAO said, "Congress would have before it, for the first time, a current detailed projection...for...the proposed reservoir project and a comprehensive river-based regional development project...." (Report at 40).

2. You testified that the Tennessee Valley Authority (TVA) overrated the energy, industrial, recreational, and other potential benefits of the Tellico Dam project. How do your estimates of the Dam's costs and benefits differ from those developed by TVA?

Benefits: Much of our response to this question has already been covered by the GAO Report's conclusions which severely criticized TVA's claimed benefits as unreliable. Nor is anyone, including us and TVA, presently capable of giving Congress a statistically accurate benefit-cost comparison of the original Tellico project and the river-based economic development program, for the simple reason that the river development option has never been prepared. That developed comparison is the job of agencies that seek to convince Congress of the need to render a species extinct.

FIGURE III

Benefits Claimed for the Tellico Project with Impoundments

Recreation	\$1,440,000
Shoreline Industrial Development	710,000
Flood Control	505,000
Navigation	400,000
Power	400,000
Fish and Wildlife	220,000
Water Supply	70,000
Redevelopment	15,000
	<hr/>
	\$3,760,000 per year

(TVA EIS, I-1-49)

Compare the benefits claimed for the project as an impoundment with the following real-life facts:

Recreation - There are already 22 major impoundments within 60 miles of Tellico. To treat elimination of the best trout river (so says the Tenn. Wildlife Resources Agency) and clean flowing family float river in Tennessee as a plus is not reasonable. (See Dept. of Interior statements, EIS at I-3-28 to 31; Governor Dunn's request to halt impoundment, EIS at I-3-42-43.) (GAO report at 28, 29, 21, 22.) See Figure IV below.

Shoreline Industrial

Development - Timberlake is defunct. The projections are unreliable. (See GAO Report at 30, 90-91)

Flood Control - No one alleges that there is any threat of flooding in the Little Tennessee Valley. The entire Tennessee River system is a computer-controlled system with more than 60 dams, 8 dams upstream of Tellico on the Little Tennessee and 30 dams upstream of Chatanooga, the only relevant flood-protection target. GAO criticized TVA's claimed benefits. (Report at 31, 91-92)

Navigation - See (1) above. Barge use is declining in East Tennessee. Figures are unreliable. (GAO Report at 32, 92-93)

Power - No generators. TVA says water through the canal could produce only 22 Megawatts (200 million KW hours spread over a year). TVA today has a 28,223 MW total, and will have on line by 1985 47,798 MW, including a surplus of over 5000 MW to sell outside the system (using official TVA figures).

Fish andWildlife

- What TVA counts as benefits, the Department of Interior says will be a loss of an "irreplaceable" river, special trout fishery, and wildlife habitats, in exchange for "mediocre, poor quality" fishing and hunting resources. EIS at I-3-28, 29. Outside observers agree. (See GAO Report at 34, 95.)

Water Supply - Benefit available with or without impoundment.

TVA appears to concede most of this analysis, since they now speak in terms of "remaining costs and benefits," while still of course declining to develop a comparative river-based economic development program for the project.

Costs

In (1) above we note some of the losses (costs) to economic development that the impoundment would cause, that were not at all considered by the agency.

Beyond losses in agriculture, tourist resources, recreation, fish and wildlife, etc. is the history: the very serious loss of the last remaining sites of the old Eastern Cherokee tribe, and the 10,000 year old prehistoric sites just recently discovered. The Valley's sites and relics show that it has always been extraordinary -- a fertile, beautiful and useful place for human settlement as long as humans have been in this part of the nation. Chief Sequoyah's birthplace, the old Cherokee nation, etc. cannot be given a monetary cost. Their loss would be incalculable, as well as economically wasteful and unnecessary.

The map illustrates the extensive dam infrastructure along the Tennessee River and its tributaries. Key features include:

- Dams and Projects:** Numerous dams are marked with circles and labeled, including Wolf Creek Dam, Cordell Hull Dam, Percy Priest Dam, Old Hickory Dam, Great Falls Dam, Normandy Dam, Columbia Dam, Beech River System, Pickwick Landing Dam, Wheeler Dam, Bear Creek System, Guntersville Dam, Blue Ridge Dam, Nottely Dam, Cherokee Dam, Clinch Dam, Watts Bar Dam, Tellico Project, and many others.
- Geographical Features:** The Tennessee River is the central feature, with its major tributaries like the Kentucky River, Clinch River, and Duck River shown. The map also indicates the locations of major cities such as Memphis, Nashville, and Knoxville.
- Administrative Regions:** The map shows the boundaries of Tennessee, Alabama (ALA), and Georgia (GA).
- Other Labels:** Various other locations and features are labeled, including Laurel Dam, Norris Dam, Melton Hill Dam, and the Tennessee Valley Authority (TVA) project area.

FIGURE IV
Tennessee River System, Showing More than 60 Major Impoundments Already
In Existence from Headwaters (Right) to the Mississippi (Left).

3. In July you indicated that there is "no rush" to complete the project. Do you have any information concerning financial losses which are being incurred as a result of the injunction by the Sixth Circuit Court prohibiting closure of the Tellico Dam?

"No Rush"

We noted that there is "no rush" because none of the project's claimed benefits is necessary for the indefinite future:

- Recreation - (The major claimed benefit). As noted in (2) there are already 22 impoundments within 60 miles of Tellico.
- Shoreline Industrial Development - (The second major claimed benefit). As noted in (2) above, there are already thousands of acres of industrial sites lying empty along existing impoundments.
- Flood control - (less than 14% of claimed project benefits). As noted in the GAO Report and (2) above, the river is already controlled by 68 dams, 30 of which lie north of Chattanooga. One small dam is insignificant; TVA's own research indicates that floodplain management is the effective way to reduce flood losses.
- Navigation - (less than 11% of claimed benefits). Barge use and the value of navigation is declining in East Tennessee as noted in the chart in (1) above, Figure 11.
- Power - (less than 11% of claimed benefits). This benefit has been emphasized by TVA as a loss from delay. By their own figures noted in (2) above, however, TVA already is building a huge surplus; Tellico's canal water could add only 0.0008 to TVA's present power, and less than five ten-thousandths to the installed 1985 capacity (0.00046).
- Fish and Wildlife - (6% of claimed benefits). In light of the views of the federal and state wildlife agencies, noted in (2) above, fish and wildlife obviously benefit from a delay of the impoundment, rather than lose.

There is, moreover, "no rush" to make the Congressional decision in ecological terms, because the endangered snail darter population is in a holding position in its natural habitat, surviving while awaiting Congress's review of comparative options for the river.

The GAO Report emphasized that in these circumstances the time constraints are not pressing, so that Congress could and should prohibit further action on the project until the comparative options and cost figures are developed for decision. (Report at 38-39).

Claimed Losses

In all likelihood TVA will claim huge dollar losses attributable to its forced compliance with the law, both in costs incurred and benefits foregone.

As to costs incurred by the delay, the agency in the past has not used real dollars for such figures.

Their loss claims in the present delay should be carefully scrutinized.

On the original figures, Tellico is a marginal project with marginal benefits. Such purported losses must be considered in the light of the potential longterm value of the Valley. These claims often can be reduced to mere bookkeeping arguments. In 1972-73 TVA was enjoined for failure to file an impact statement, and claimed that \$15 million loss resulted. Upon review virtually the entire loss turned out to be based on the changing value of the dollar, ignoring the fact that TVA pays such costs in similarly inflated federal dollars, and that the value of the Valley assets, e.g. land, would similarly increase during a delay. See Deposition of TVA Manager of Engineering, Design & Construction, March 31, 1976, 33-47.

As to benefits lost, the agency's figures can be deflated by facts and common sense. Most fundamentally, the agency's claimed losses are gross figures, not net; they take no consideration of the amount of costs absorbed to produce the figure, nor of the value of resources and alternatives eliminated.

Take the example of electrical power that might be derived from water flow through a Tellico canal (TVA has argued that this flow could produce yearly revenues of \$3 million dollars of "free" energy):

- The "\$3 million power benefit" would occur through the loss of more than \$6 million in annual agricultural revenue potential, not to mention tourist, historical, and industrial resources.

As noted in (1) above, TVA admitted to GAO that up to \$6.4 million could be made yearly in agricultural revenues from an unflooded Valley; more objective observers in local banking have put the figure closer to \$15 million. Other values eliminated are likewise noted in (1).

- The "\$3 million power benefit" would represent energy fifteen times more expensive than average hydro energy in the TVA system.

According to TVA's own reports, the average "actual cost per kilowatt [capacity] for plants in service" is \$174 for hydro plants and \$135 for coal-fired plants (dividing project cost by KW capacity; TVA Power Statistics, March 1977). By comparison Tellico's small flowage through the canal would represent a cost of more than \$3000 per kilowatt capacity! This is 300% more expensive than the existing system's highest per - KW cost hydro unit.

- Electrical power has real value only where it is needed power, but TVA already has millions of kilowatts of excess capacity.

TVA's peak load comes in winter. In a recent survey of power statistics, TVA had a 34% excess over peak demand for the peak winter month; in the summer months it was 65% over peak demand (based on officially reported TVA figures). And the rate of growth of regional demand is declining markedly, not rising. Tellico water flows would be as unnecessary for energy production as they are expensive.

- The "\$3 million dollar benefit," though a great deal of money in layman's terms, is minuscule in TVA's.

At an equivalent price TVA's system produced \$1,862,500,000.00 dollars worth of power in 1976. Tellico would add less than 0.0005 to TVA capacity currently in existence or under construction; if the revenue or the 22 MW attributable to Tellico were ever needed it could be supplied out of the excess capacity of the other dams, coal-fired and nuclear plants.

In short, to avoid the numbers game, one must look at potential benefits and losses in a real economic context. This is a marginal project and the benefits

foregone through statutory compliance are therefore marginal. The assets, benefits, and potential revenues preserved, however, appear to be particularly valuable. If a wrecking crew proposed to tear down Chairman Wagner's house for firewood and parking, they could undoubtedly demonstrate that revenues would thereby be generated, but he would probably argue for a delay or halt to the project, correctly, since the benefits and returns from his undestroyed home may outweigh the proposed revenues. It's the same with valleys.

4. During your testimony, you claimed that, in regard to the Tellico project, TVA has been inflexible in its implementation of the Endangered Species Act. Would you please document specific instances which illustrate this alleged inflexibility?

Without entering into commentaries upon the personalities involved in TVA's leadership, it can be said that TVA has consistently and completely refused to consider any legal compliance or course of conduct which might forestall completion of their dam. In our survey of Department of Interior files on Endangered Species Act compliance, TVA's conduct in this regard is more pronounced than that of any other federal agency.

[For brief background, the history of the agency's inflexibility on Tellico predates the Endangered Species Act. After beginning the dam against the protests of local citizens, TVA in 1970 did not comply with the National Environmental Policy Act, and it took the citizens a year of active litigation in 1971 to obtain a court order requiring compliance. Although other federal construction agencies honor state governor's requests, when Governor Winfield Dunn of Tennessee officially requested that TVA halt its impoundment plans in favor of river-based development, TVA informed Governor Dunn it did not agree with him and proceeded with the dam (see EIS 1-3-42 ff). And when Congress withdrew funding from the Timberlake New Town, and Boeing Corp. backed out saying that the project was economically infeasible, the agency nevertheless insisted on pushing on with the dam despite the elimination of one of the two primary project benefit claims, industrial development.]

The endangered snail darter was discovered by Dr. David Etnier, a nationally respected ichthyologist, on a large shoal near Coytee Springs, on or about August 9, 1973, and shortly thereafter was collected by TVA fisheries biologists. All scientists were in agreement from the first that the fish had never before been known, and that its known population was localized in the clean, shallow flowing big river habitat of the Little Tennessee River. The Endangered Species Act became effective in December, 1973.

TVA's response to the statute and the snail darter can be grouped in a variety of categories, all reinforcing the conclusion that the agency never considered complying with the law in good faith:

Project expenditures and construction

The following chart indicates the timing and amount of agency expenditures on the project and the dam:

(Figure V)

FIGURE V

<u>Year</u>	<u>Funds Expended, in Thousands</u>	<u>Cumulative Running Total</u>
1967	\$ 4,821	—
1968	6,794	(11,615)
1969	5,767	(17,382)
1970	5,176	(22,558)
1971	4,816	(27,374)
1972	5,374	(32,748)
1973	2,857	(35,605) - [Discovery of the endangered
1974	7,687	(43,292) species; End. Spec. Act]
1975	17,127	(60,419)
to June 1976	24,928	(85,347)
to Feb. 1977	15,651	(100,998)
Feb. 1977	(ca 2,200)	(103,198)
\$103,198,000		TOTAL TO FEB. 28, 1977
(TVA Public Information Office, Feb. 7, 1977; GAO Report, 10.)		

Figure Five shows clearly that the agency did not decrease its project efforts when it discovered the endangered species; rather it dramatically increased the pace of expenditures.

In the seven years before the endangered species was discovered, only about \$35 million had been spent, primarily on purchase of the Valley lands and the construction of the concrete dam (which also indicates the small proportion of project funds comprised in the dam itself). In the four years after discovery of the darter, TVA spent \$67,593,000, for excavation, tree clearing, building dikes, roads and bridges, etc.

Specific construction efforts reinforce this picture. The tree-cutting and land scalping was commenced early one morning at Coytee Springs, a historical landmark surrounded by a glade of giant sycamore trees where, according to some historians, the Cherokees and the English settlers made their first treaty west of the Appalachians. The spring also marks the river location which is the darter's prime spawning habitat. By noon all the trees had been dropped, and bulldozers were driving back and forth through the spring, sending a torrent of silt out over the river shoals. When the site had been scalped, the crews left the area and began a more gradual clearing process farther up the river.

Elsewhere on the river, when the 6th Circuit's decision to hear the Tellico case was announced, TVA crews moved to an overtime 6-day a week schedule, working under portable floodlights through the night for several months to cut and scrape the impoundment area. According to an insider's report of a high level agency meeting it was announced that by the time the citizens appeared in the 6th Circuit, there would be no more trees standing in the impoundment area. (In actual fact, 2000 acres remained uncut, while the cutover portions are rapidly regenerating.) TVA's official position, presented in a July preliminary hearing, was that since only the eventual closure of the dam threatened the species, all other project activities short of closure could continue unabated. The injunction was not issued until February 1977.

Legal Posture

From the beginning of the Endangered Species Act controversy in 1974 when citizens requested the agency to comply with Act, Chairman Wagner and General Manager Lynn Seeber took the position, as with NEPA before, that the Act did not apply to the Tellico Project.

TVA's position, starting in 1974 in response to citizen requests, is exemplified in General Manager Seeber's assertion that:

"The Tellico Project has been lawfully authorized by Congress and is being carried out in accordance with all applicable federal, state and local environmental requirements..."
Letter from General Manager Seeber to Hill, Plater and Cohen, October 28, 1975.

When questioned in TVA's monthly public board meeting about how continued project construction complied with the law, Chairman Wagner replied that TVA would comply with court orders, and no court had ordered the agency to halt construction. This clearly implied that the agency would not voluntarily comply with the Act until such time as someone took it to court and won an injunction.

The agency took the further position that the Act did not apply to Tellico because the project was important and the species was not, that the Act should be read with a grandfather clause though none was present in the statute, or that continued appropriations informally repealed laws that stood in the way of the project.

As noted below, the agency also took the position that compliance was not required until the endangered species was given its Latin name.

TVA Cooperation with the Department of Interior

The official FWS files on the Tellico case are voluminous, but reflect a consistent pattern. TVA's communications with Interior show prolonged refusals to alter construction activities until the court so ordered; prolonged efforts to prevent or delay the listing of the species; refusals to consider compliance until the fish was officially described in a scientific publication, named in Latin, and listed; refusals to consult with Interior on any course of action except completion of the dam and transplantation; and refusal to take any measures for conservation of the species in its river habitat.

Continuation of work

The Department of Interior's first major communications with TVA occurred in Fall 1974, at which time the Office of Endangered Species (OES) told TVA officials that the dam and construction work on the impoundment appeared to threaten the species based on best available knowledge. Interior requested TVA to review the project and its effects on the species and to take steps to conserve its population. The project would destroy the eco-system and the "established natural population of this species, a result obviously contrary to the policies of the Act." Letter of March 7, 1975.

TVA responded that only the ultimate closure of the dam threatened the survival of the species, and insisted on continued construction: "there will be ample opportunity to obtain the views of the scientific community...as well as to examine further the possibilities of transplantation and the present existence of the darter at other locations." They disagreed that actions taken to complete the project would be prohibited by the Act if such actions jeopardized the species. Tree cutting and bulldozing, TVA said, "presents no threat to the darter or its habitat," although silt was at that time pouring off the banks into the river. Letter of March 12, 1975.

The basic position of the Authority, often repeated, was that if anything the Act only meant that the dam itself could not be closed, so no compliance would take place until then, and even then a court injunction would be required. This may have been an attempt to spend so much money and construction effort that later the courts and Congress would be persuaded not to consider alternatives.

Delay of Procedures

TVA filed extensive materials on the "so-called snail darter". They argued that it was not endangered, in documents by their paid consultant Dr. Raney and others asserting that the fish undoubtedly lived elsewhere, would not be harmed by flooding its spawning habitat, and wasn't properly named. Each allegation was subsequently found empty by the court.

The effect of TVA's voluminous submissions, complaints, and objections, often filed at the end of the official comment periods, however, was to prolong the administrative process until November 1975 for the species listing and the habitat listing until April 1976. Even then the agency argued that the Interior actions were not effective until 30 days after publication.

Interior responded that formalities should not be prerequisites to good faith agency compliance, in light of the policy of Congress that "all Federal agencies shall seek to conserve endangered species...." Cf. Letters of Dec. 12, 1974; March 7, 1975.

"Consultation"

The Act requires good faith consultation when an endangered species conflict arises.

In late October 1975, more than two years after the darter was discovered by TVA, Director Greenwalt of the Fish and Wildlife Service was still asking TVA to begin agency consultation on the issue. Actual consultation did not begin until early the next year, 30 months after the conflict was discovered. Even then, in February and March 1976, FWS noted that "discussions have been limited to the snail darter transplant program and have not dealt with the problems posed for the snail darter by the Tellico Dam itself"; "Consultation as envisioned in the guidelines...has not taken place". Letters of Oct. 19, 1975; Feb. and March 1976.

In the meantime, TVA had been informing FWS about its transplant program to move the fish anywhere else but behind the dam. (This transplantation was commenced hastily, without either the required federal or state permits, and actual field data to date indicates that the transplant is not a success.) Interior stated that transplantation was not compliance with the Act since it takes 5 to 15 years to know the probability of establishing new populations.) TVA asserted that its inter-agency actions were ratified as valid consultation by the Knoxville court. (In actuality the court had said that "TVA has communicated frequently with the Fish and Wildlife Service....")

Interior continually urged that the purpose of consultation is to explore "all possible options to prevent extinction". When TVA argued that no modifications were available except complete abandonment of the project, Interior noted the variety of possible alternatives that still exist today, including "utilization of the land investment for other purposes such as recreation, scenic, etc." "We are of the opinion that the legislation is crystal clear and that a formal consultation is required in this instance." Letters of October 29, 1975; May 13, 1976; May 27, 1976.

TVA's perennial response was that "although we feel we have fully and exhaustively consulted(sic) with FWS with regard to all options available to complete the project and save the snail darter, we shall be happy to consult further if you have additional suggestions or plans which will allow completion of the project...." Letter of May 14, 1976.

In this entire chronology, the only consultation or compliance actions that the agency entertained were incidental and ineffective attempts to mitigate the certain damages that the impoundment would cause. To this day no division of the agency has been permitted to prepare the comprehensive river-based economic program options that would develop the project area's resources and preserve the endangered species and its Valley habitat.

5. You stated that there is significant opposition to the construction of the Tellico Dam and Reservoir among local citizens. However, during the Subcommittee's hearings several members of the U.S. House of Representatives from Tennessee and other witnesses testified that many people in the Valley favor the project. Have you any indications to the contrary?

Opposition to the Tellico dam began 15 years ago with a small group of sportsmen and local citizens, including many of the several hundred families whose land was condemned. The opposition has grown and broadened over the years, however, as criticism of TVA became more possible in East Tennessee.

Today the active groups involved in the Little Tennessee River Alliance include the following organizations, many of which did not even exist in Tennessee 15 years ago, with a combined membership of over 25,000 citizens:

Tennessee Conservation League (NWF affiliate)
Sierra Club Tennessee Chapter
The Eastern Tribe of Cherokee Indians
Tennessee Citizens for Wilderness Planning
Tennessee Endangered Species Committee
Smoky Mountains Hiking Club
Tennessee Audubon Council
Trout Unlimited, Great Smoky Mountains Chapter
Tennessee Outdoor Writers Association
Tennessee Environmental Council

These groups, and literally hundreds of private citizens who have contributed to the support of the enforcement action, seek the adoption of a constructive river-based development option for the Valley.

In all honesty, it is clear that the majority of East Tennessee citizens polled today would support TVA's dam. Rep. John Duncan's newsletter poll showed more than 80% in favor of the project. The flaw in these figures, however, lies in the vagueness with which the question is generally understood. Like the Duncan poll, most people have never heard about the alternative economic development options for the river. TVA has said that with the impoundment will come jobs, industries, and local revenue; without the impoundment will come economic disaster.

TVA has done so much good for the Valley, and has so much power in the Valley, that it is difficult for citizens to make or hear informed public criticism of the agency's position. A number of local citizens in the vicinity of the dam were recently astonished when they heard that there was a possibility for agricultural and tourist development along the river. They had been told that the anti-dam endangered species lawsuit was seeking to turn the Valley into a park, with no developed uses or revenues.

In these circumstances, when Rep. Duncan asks citizens whether they support the objectives of the Tellico project, nearly all do. (Ironically, most of TVA's citizen critics also support the project objectives of jobs, revenues, and economic development, merely rejecting the impoundment feature and adding further river-based resources.) On November 28 we asked Rep. Duncan to poll his constituents with a more accurate questionnaire which informed them of the river-based development options now being debated. The suggested question:

"Several modified development programs are being considered for the Tellico Project. If the Little Tennessee Valley could now be developed for agriculture, industrial sites and jobs, fishing, recreation and tourism without flooding the Valley would you support it _____? or oppose it _____?"

Rep. Duncan has not yet undertaken a new poll. Until the existence of options is publicly known and reacted to, the local public's ultimate feelings on the proper choices for the Valley will remain conjectural.

(On the plus side, however, it appears that pro Valley - anti dam citizens are far more actively concerned about the issue than the citizens who support TVA's position. In the months since the filing of the Tellico lawsuit, nearly twice as many letters to the editor in local papers favored non-dam options. The count to mid-July was 90 against the dam, 49 for it.)

Finally, it should be remembered that Congress has a national public on the Tellico issue. The Great Smoky Mountains National Park leads the nation in national visitation; it and the Little Tennessee Valley is within a 1 1/2 day's drive of 40% of the U.S. population. What is done with the Valley will have longterm importance to past and future Americans. The Valley's Cherokee history is a major part of our national heritage, as the birthplace of the Cherokee nation and Chief Sequoyah, as are the prehistoric sites of America's oldest continued human settlements. And as to the Endangered Species Act which itself is at issue in these deliberations, there never yet has been a conscious human extermination of a living species from the face of the earth. The Tellico project, which can preserve the species and its Valley habitat with extremely valuable river-based development options, is no place to start such a sad precedent.

Further issues: Conservationists would suggest several specific actions for this subcommittee with regard to the Tellico reservoir - snail darter case

The citizens supporting the protection of the snail darter and river-based development of the Tellico Project would of course prefer that the committee, on the basis of the record, require TVA to proceed to modify the Project for river-based development at the present time.

Since this issue is clearly a controversial one, however, Congressional consideration may well extend for some time before decisions are made. In this event it seems logical and necessary that the committee do the following:

1. Continue through the current information-gathering to assess the degree of TVA's good faith implementation of the Act.
2. Review information on all the options available to Congress, including the comprehensive river-based economic development program, as advised by the GAO study team. GAO advised that you request TVA, in operation with other agencies to develop alternative proposals for development of the Project which would protect the natural population of snail darters in the Little Tennessee River; this should include development of the initial proposals prepared for the House Subcommittee on Fisheries and Wildlife by the University of Tennessee School of Architecture in the Hanson Report.
3. As advised by the GAO study team, request TVA to do modern benefit-cost studies for the alternative development proposals and for the reservoir project as planned.

Finally, in the existing circumstances recognized in the GAO recommendation, TVA should be required to develop requested project plans and cost estimates in conjunction with other agencies that do not share TVA's past commitment to finishing this last reservoir at any cost or consequence. Participation should include the National Park Service, Fish and Wildlife Service, Department of Agriculture, CEQ and OMB. These agencies appear willing to participate in any such effort requested by the committee.

The Endangered Species Act Oversight Review

As important as the Tellico case study is in showing the benefits of statutory compliance, it is only part of the larger question of support for the Endangered Species Act itself.

The national conservation groups, which have worked extremely hard to develop data and supportive analysis on this important Act's implementation, were pleased with the thorough and perceptive Senate hearings in July. The Culver committee compiled a hearing record displaying breadth and depth of coverage. From those hearings it was clear on the facts that the Act has been working as it was supposed to, with active interagency efforts to discover and resolve the project conflicts that lead to extinction of fish and wildlife species.

In the hearings the federal agencies, except TVA and its witnesses, continually affirmed the good faith workability of the act. 4500 potential conflicts and hundreds of actual conflicts between endangered species and projects have occurred over the first four years of the Act. All but three were reconciled without going to court and only one of those has come to Congress -- Tellico.

To listen to the foes of the Act as it approaches reauthorization, however, one would think the hearings had never been held. Current pressures against the Act are based on arguments that were roundly deflated by the facts at the hearings. They include, for example, the arguments that the Act:

--"would stop progress in America," despite the fact that this has not occurred in the hundreds of cases arising to date, and that problems in interagency consultation continually become less so as agencies understand the issues, regulations and procedures.

--"protects frivolous species," despite the evidence that even small, undramatic endangered species act as barometers of human and ecological concerns far beyond their own discrete importance. As the President has noted, "Our fish, wildlife and plant resources act as an indicator of the health of our environment...., when they have trouble surviving, we should seriously examine the quality of our environment."

--"is inflexible," despite the administrative record of conflict resolution over the years. Interagency consultation has embodied flexibility for resolving competing interests in the overwhelming majority of cases and the courts have extensive powers to determine whether conflicts exist.

In actual fact there has been only one extraordinary case where a consultation has failed and the decision brought to Congress: Tellico, as the committee has noted, is the product of prolonged refusals by the agency to consult on project options complying with the law. That demonstrates bureaucratic inflexibility, rather than statutory inflexibility.

--"will bring an avalanche of cases to Congress," despite the fact that only one of the hundreds of cases to date has come to Congress. As a matter of proper procedure, Congress should decline to review cases that have not first gone through the administrative and judicial processes. If Congress acts carefully now, scrutinizing the facts and agency behavior in the Tellico case closely, it will dissuade other agencies from rushing to Congress

for exemptions instead of resolving conflicts through consultation. Ultimately there may be a case where Congress will decide that an irreconcilable project is more important than the survival of a species, but the record shows that no such cases have ever arisen under the Act, and they would be most extraordinary.

In sum, the innuendoes against the Act might be described as narrow attempts to eliminate an effective law before its public learns the facts. Proposed amendments would eliminate its workability, so that the survival of species would depend upon bureaucratic decisions. In the rare case where a choice between a species' survival and a public project cannot be avoided through good faith agency actions, that unprecedented decision should be made by the representatives of the people, in Congress.

The most impressive fact revealed by the hearings, undercutting each of the rhetorical attacks on the Act, is that in four years' experience under this major wildlife law, a good faith project-species conflict that could not be resolved in the public interest has never occurred.

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE

OFFICE OF THE BOARD OF DIRECTORS

January 4, 1978

The Honorable John C. Culver, Chairman
Subcommittee on Resource Protection
Senate Environment and Public Works Committee
Washington, D.C. 20510

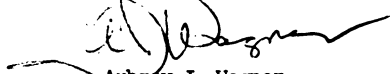
Dear Senator Culver:

As you requested in your letter of November 30, 1977, which we received on December 13, 1977, we are pleased to enclose, in duplicate, TVA's responses to the additional questions about Tellico which were unresolved during your Subcommittee's July oversight hearings on the Endangered Species Act of 1973.

Director Freeman was not a member of the TVA Board at the time of your hearings in July and has not yet formed an opinion on the questions you raise. He therefore does not join in the enclosed responses.

If we can be of further assistance, please let us know.

Sincerely,



Aubrey J. Wagner
Chairman

Enclosure

An Equal Opportunity Employer

Question 1(a). Has TVA developed or recently reviewed non-reservoir alternatives for the Tellico project? If so, please describe the nature of these alternatives, when they were reviewed, and why they were rejected by your agency.

Yes. Since the Tellico project had been planned in the early 1940's as an extension of the Fort Loudoun project and as a part of the overall plan for the Unified Development of the Tennessee River System which was submitted by TVA to Congress in March 1936 pursuant to section 4(j) of the TVA Act and since historically a principal design feature of Tellico was to provide a navigable canal between the existing Fort Loudoun Reservoir and the new reservoir which would provide additional navigational and hydroelectric power benefits without the costs of building a lock or adding generating facilities, the discussion of physical alternatives was initially limited to dam design and site alternatives when the Tellico project planning report was developed by TVA in 1963. In 1965 and 1966, before the project was authorized by TVA or funded by Congress, the issue of reservoir versus nonreservoir alternatives was examined and debated in Congress during hearings before the Senate and House Appropriations Subcommittees. (Hearings Before a Subcomm. of the House Comm. on Appropriations, 89th Cong., 1st Sess., pt. 3, at 14-36, and pt. 4, at 747-84, 1002-76 (1965); Hearings Before a Subcomm. of the Senate Comm. on Appropriations, 89th Cong. 1st Sess., pt. 4, at 43, 86-156, 202-46 (1965); Hearings Before a Subcomm. of the House Comm. on Appropriations, 89th Cong., 2d Sess., pt. 2, at 697-701, 753-78, and pt. 3, at 731-71 (1966); Hearings Before a Subcomm. of the Senate Comm. on Appropriations, 89th Cong., 2d Sess., pt. 4, at 40-80 (1966)). The issue was further considered by TVA in 1971 and 1972 as a part of TVA's environmental review of Tellico embodied in the three-volume Environmental Impact Statement (EIS) for Tellico, which was provided to Congress and approved by the courts. The table attached hereto

as Exhibit 1 lists the alternatives considered by TVA during the environmental review, including a scenic river alternative (the principal nonreservoir alternative which has been suggested by project opponents). Each of the alternatives has a level of economic benefits significantly lower than the benefits from Tellico and was rejected.

Specifically, the costs and benefits of the scenic river alternative for the Little Tennessee River were examined based on the level of development comparable to that proposed for the Buffalo Scenic Riverway, a plan sponsored by TVA in cooperation with the Department of Conservation and the Bureau of Outdoor Recreation. The plan, which included a buffer zone along the river banks, public access areas, and camping, hiking, canoeing, picnicking and sanitary facilities, was found to provide a level of net economic benefits, of about 2 percent of the Tellico net benefits, and was rejected.

Thereafter, during appropriations hearings each year, TVA has fully reported to Congress on the progress of the Tellico project and the snail darter situation, and TVA has been directed by Congress to complete the project as promptly as possible in the public interest (H.R. Rep. No. 94-319, 94th Cong., 1st Sess. 76 (1975); S. Rep. No. 94-960, 94th Cong., 2d Sess. 96 (1976); H.R. Rep. No. 95-379, 95th Cong., 1st Sess. 104 (1977); S. Rep. No. 95-301, 95th Cong., 1st Sess. 99 (1977)). In light of this, it is our belief that further review by TVA of nonreservoir alternatives is both unnecessary and inappropriate. The project has now been built; the gates of the dam are ready to be closed; and the public benefits ready to be realized. We believe the time for discussion of nonreservoir alternatives has passed. We note that even in situations where Congress has not specifically directed the completion of a project, as it has done in the case of

Tellico, the current Principles and Standards for Planning Water and Related Land Resources, developed by the Water Resources Council in September 1973, make clear that a plan need not be reviewed unless it is not implemented within 10 years after completion of the project plan.

Question 1(b). With energy production as one of the stated objectives of the project, has TVA considered using agricultural lands within the project area for research on the production of energy from biomass?

No. Independent of the Tellico project, TVA is conducting several experimental projects on the production and use of energy from biomass. It is TVA's view, however, that even if Congress elected to scrap the Tellico project at this point, using the land within the project area for research on the production of energy from biomass is not its highest and best use. For example, farming the agricultural land in the project area for food and fiber production would be a substantially higher and better use of this land than use for biomass conversion.

Question 2. Several witnesses who appeared at the hearing testified that TVA, in constructing the Tellico Dam, did not comply fully with requirements of the Endangered Species Act. For instance, it was alleged that when the snail darter was officially listed as endangered in November 1975, TVA began a 24-hour-a-day construction schedule, initiating bulldozing and clear-cutting activities at Coytee Springs, the major spawning habitat for the snail darter. Similarly, witnesses from the Department of the Interior stated that TVA allegedly refused to consider non-reservoir alternatives during consultations with the Fish and Wildlife Service regarding Tellico. Please comment on these statements, providing documentation of your comments. In addition, please provide the Subcommittee with a summary of the overall development of the Tellico project, including expenditure of funds, from 1967 to the present.

While the legal question of TVA's ability to complete the Tellico project in light of the Endangered Species Act is still before the courts, it has been and remains TVA's position that the Endangered Species Act was not intended to be applied retroactively to halt a congressionally authorized project which was substantially complete when the Act was passed and the

affected species listed as endangered. It is our position that we have fully complied with the Endangered Species Act by doing everything possible to save the snail darter while completing the project as directed by Congress.

a. Construction and Clearing - Work activities for the completion of the Tellico project were scheduled and performed in accordance with a project engineering construction schedule (revised in 1973 before the Endangered Species Act was enacted) which called for closure of the dam in January 1977. A copy of the construction schedule, as revised in 1973, is attached as Exhibit 2. The allegation that TVA launched 24-hour-a-day work schedules to harm the snail darter is simply untrue. TVA began some construction on a three-shift basis in mid-June 1974 with foundation grouting for the earthfill portion of the dam being the primary work on the third shift. The third shift was expanded in July 1975 to include the placing of earthfill at the dam site. In 1975 and 1976, the third shift was required to reach a stage of construction at the end of each earthmoving (i.e., dry weather) season so the dam would be in a safe condition to protect against the possibility of major flooding during the winter and spring seasons. The construction schedule was unrelated to the snail darter but was dictated by the January 1977 closure date. Copies of Tellico project "Construction Force Reports," attached hereto as collective Exhibit 3, show that the total number of workers on the third shift rose to 38 in July 1975, peaked at 53 in September 1975, and by mid-October 1975 declined to the low 40's. Since the snail darter issue surfaced, all construction work has been performed so as to minimize its effect on the river and the designated critical habitat of the snail darter.

Reservoir clearing operations were similarly dictated by the January 1977 closure date. They were commenced on January 13, 1975, with

the execution of the first contract for the sale and removal of merchantable timber. The contract, which was awarded by competitive bidding, had a specified completion date of June 1, 1975, and was part of TVA's efforts to allow the recovery and utilization of the timber resources prior to total clearing of the reservoir. The particular contract (TV-1098.677), attached hereto as Exhibit 4, covered a nine-mile segment along the right bank of the river, including the Coytee Springs site. This nine-mile segment was the first area available (i.e., where merchantable timber had been removed) in September 1975, when TVA began clearing the remainder of the reservoir basin and so clearing began there. An excerpt from the October 1975 Construction Progress report is attached hereto as Exhibit 5. Clearing was performed on a single shift basis. The reservoir clearing work was carefully coordinated with TVA foresters, fisheries biologists, and sedimentation experts to assure that the snail darter would not be adversely affected; and special precautions beyond those already contained in TVA's clearing specifications were instituted at substantial costs. These precautions included special clearing methods on steep slopes, reseeding of critical areas where the soil had been disturbed and supervision of clearing work by a qualified forester. See the following documents: Tellico Reservoir construction specification No. TC-858; a letter to James D. Williams of the U.S. Fish and Wildlife Service dated December 1, 1975 from Dr. Ripley of TVA; and a memorandum dated December 15, 1975, to G. H. Kimmons from Dr. Ripley, attached as collective Exhibit 6. These efforts were a part of TVA's overall program to preserve the snail darter, which began before the commencement of clearing or the listing of the snail darter, and which included, among other things, funding a study of the life history of the snail darter by biologists at The University of Tennessee beginning in

September 1974 and TVA's own comprehensive biological program to save the snail darter. The fact is that plaintiff's own biologists agreed during the snail darter trial that TVA was doing everything humanly possible to save the snail darter short of scrapping the project.

b. TVA's Refusal To Consider Nonreservoir Alternatives - This issue has been addressed in part in response to question No. 1(a) above, and TVA's correspondence with the Fish and Wildlife Service (FWS) on this issue is attached hereto as collective Exhibit 7. The question of TVA's consideration of nonreservoir alternatives must be viewed in light of the fact that the project was substantially complete when the snail darter was listed as endangered. TVA's position on this question was stated in TVA's May 13, 1976, letter to Phillip S. Morgan, Acting Regional Director of the FWS (attached):

We feel that in completing the project TVA has explored all possible options to prevent extinction of the snail darter and are confident that our efforts will be successful. Given the situation that exists with respect to this project, which is 80 percent complete and which involves a public investment of \$80 million, there seems to us to be no other realistic and feasible option than to complete the project as scheduled, and we have so informed Congress and OMB. This project is not one which allows for alteration in detail or design which could prevent alteration or modification of the presently listed critical habitat of the snail darter, which was discovered after the project was over 50 percent complete and listed as endangered after the project was 75 percent complete. Unlike a highway or other flexible project, the dam cannot be moved; nor can the reservoir level be altered. The basic design of the project is to make Tellico Reservoir an integral part of Fort Loudoun Reservoir and it must necessarily have the same water level. The only real choices available are to complete or abandon the project, and Congress, with all the relevant information before it, has directed TVA to complete the project. We know of no valid reason to alter that view, and we certainly do not construe the Endangered Species Act to require the outright abandonment of a project in such an advanced stage of completion.

The district court found TVA's course of action reasonable and in accordance with the law:

Completion of the dam and impoundment of the river are integral parts of a project begun almost a decade ago. TVA has been moving toward this goal since ground was first broken. When the snail darter was listed on the endangered species list in November 1975, TVA was fairly close to completion of the project which has been consistently funded by Congress since 1966.

The nature of the project is such that there are no alternatives to impoundment of the reservoir, short of scrapping the entire project. Modifications or alterations to the project cannot be made at this time which will insure compliance with the Endangered Species Act. Requiring TVA to consult with other agencies about alternatives not reasonably available to it would be to require TVA to perform a useless gesture [Hill v. Tennessee Valley Authority, 419 F. Supp. 753, 758 (E.D. Tenn. 1976)].

c. Summary of Development of the Project - A summary of the appropriations and expenditures for the various work activities at the Tellico project (from 1967 to the present) is attached hereto as Exhibit 8.

The project planning report for Tellico was prepared by TVA in 1963 with initial funding of the project being provided in October 1966 (Pub. L. No. 89-689, 80 Stat. 1014) after extensive hearings before the House and Senate Appropriations Committees in 1965 and 1966. Construction began in March 1967; the concrete portion of the project was completed in March 1969; and the reservoir portion of the project was essentially completed with the dam ready for closure in January 1977. Remaining work includes completion of several road projects, recreation facilities, and archaeological and historical reconstructions. Major construction was halted for 21 months from January 1972 to November 1973 by injunction in litigation over the need for the adequacy of an environmental impact statement (EIS) for Tellico. The environmental impact statement was ultimately approved by the courts as adequate under the National Environmental Policy Act (Environmental Defense Fund v. Tennessee Valley Authority, 371 F. Supp. 1004 (E.D. Tenn. 1973), aff'd, 492 F.2d 466 (6th Cir. 1974)). The dam has been ready for closure since January 4, 1977, but litigation over the snail darter issue has resulted in an injunction preventing closure of the dam and

certain other activities. The Sixth Circuit's January 31, 1977, decision is now pending before the Supreme Court of the United States which, on November 14, 1977, agreed to review the decision of the court of appeals.

Question 3. Executive Order 11593 requires federal agencies to take necessary steps to protect areas which are contained on the National Register of Historic Sites or which may be nominated for inclusion on the Register. Witnesses at the hearings identified some 200 sites of archaeological and historical significance that would be affected adversely by closure of the dam. What action has TVA taken, or what action will it take, to comply with the Executive Order and to protect these sites if the Tellico project is completed?

TVA believes that it has fully complied with the requirements of Executive Order 11593, the National Historic Preservation Act of 1966, the Historic Sites Act of 1935, and the Antiquities Act of 1906 in carrying out the Tellico project. Every major site has been investigated, several have been placed on the Register, and other nominations are in process.

The 10-year program of archaeological surveys, investigations, and recovery at Tellico is believed to be the largest recovery effort made on a reservoir project anywhere in the United States. The program was jointly funded by TVA and the National Park Service at a cost of over \$1.5 million, and was carried out with The University of Tennessee and others. The Office of History and Archaeology, National Park Service, has been kept fully informed before work began and as it progressed. The Advisory Council on Historic Preservation has been consulted and has approved preservation and mitigation plans for major sites. Moreover, the entire archaeological program has been reviewed and approved at regular intervals by TVA's Board of Archaeological Consultants, made up of nationally renowned archaeologists.

As stated in the July 20, 1977, letter of Dr. A. K. Guthe, Principal Investigator of the Tellico Archaeological Program, attached as Exhibit 9, the Tellico project

. . . has made it possible to plan and carry out an orderly and very extensive program of archaeological survey and investigation of the significant resources in the project area. As a result, a great volume of archaeological and historical information as well as artifactual material has been recovered and new insight has been gained into the prehistoric and historic Indian occupation of the area. . . .

Of principal significance in evaluating the results of this program is the fact that much of the information and material which has been recovered was unavailable when the land was in private ownership. It was being lost and destroyed by erosion, cultivation, theft, natural deterioration, and improper handling by unscientifically trained persons. If the project should not be completed and the land should be returned to private ownership, it is believed that this process of loss and destruction would be resumed, doubtless on an accelerated basis since our work has pinpointed the location of sites which formerly were known only in a general way.

The claim that "some 200 sites of archaeological and historical significance" would be adversely affected is inaccurate. While the Tellico archaeological surveys did locate and document the existence of over 200 loci or sites, many of these are not considered important or significant by the archaeological community, and perhaps are best described as minor Indian camps and hunting sites which are similar to thousands of such sites throughout the Tennessee Valley. The more important sites have all been adequately investigated, providing substantial information to document and preserve the prehistoric and historic Indian occupations of the area. Moreover, as Dr. Guthe's letter points out, inundation does not mean the complete loss of this cumulative information:

There are a significant number of people in the field of archaeology who regard inundation by a reservoir as preferable to continued destruction of sites by looting and natural forces. Although the effects of inundation are not fully known and an area has been provided to test these effects in the Tellico project, it is well established that certain materials essential to archaeological research such as carbonized matter, stone, flint, and soil stains survive after thousands of years following inundation by water. The Early Archaic and Early Woodland sites investigated by Dr. Chapman are examples. There such materials were discovered under 10 to 15 feet of alluvial deposit, laid

down by repeated flooding over a time span of 9,500 years. In short, inundation is not inevitably destruction, and may be considered preferable to the damage and destruction of sites which occurs from looting, cultivation, and erosion.

The 18 archaeological sites found to be significant have received extensive testing with ample excavation to provide a full scientific interpretation of the sites. Six historical and archaeological sites are now on the Register and others are currently being processed. Full or partial reconstruction of three major historic and archaeological sites, namely, Fort Loudoun, the Tellico Blockhouse, and Chota, are being completed and will be preserved as a part of the Tellico project. Two National Register houses, the Bowman House and the McGhee Mansion, have been acquired by TVA and are being maintained for development by responsible organizations or public agencies. In summary, it is TVA's belief that the Tellico project has contributed substantially to providing an understanding of and preserving the archaeological and historical values of the Little Tennessee River Valley.

Question 4. During the hearing several landowners from the Little Tennessee River Valley criticized TVA's land acquisition policy for Tellico, specifically that the Tennessee Valley Authority acquired more land than was necessary for the impoundment. Mr. Lynn Seeber, in explaining the rationale for this, noted that "(I)f you...build an instant reservoir and leave the land in private ownership...industrial sites get used up immediately because there is immediate demand for home sites and cabin developments."

TVA's land acquisition policies and procedures, particularly with regard to Tellico, are explained in a letter of November 14, 1977, to The Honorable Malcolm Wallop, a copy of which is attached as Exhibit 10.

Question 4(a). How much land has TVA acquired for the total Tellico project? How many acres will be used for the reservoir impoundment and how many acres for industrial or other purposes?

TVA has acquired about 38,000 acres of land for the Tellico project, plus some 2,000 acres of riverbed. Approximately 16,500 acres will be inundated by Tellico reservoir at normal pool with an additional 2,900 acres

periodically inundated during flood control operations. The remaining 20,600 acres of shoreland will be managed to create a planned environment stressing the careful blending of the area's natural, cultural, and locational attributes into an optimum resource development plan of high quality known as Timberlake. The exact acreage ultimately devoted to each purpose will depend on many factors, such as the economy, governmental actions, housing trends, lifestyles, and technology; however, as presently planned, land use would be associated with the following general categories:

<u>Category</u>	<u>Acres</u>
Primary housing	3,700
Recreation	7,200
Industrial	5,000
Wildlife Management, Open Space, and Dam Reservation	4,100
Other	<u>600</u>
TOTAL	20,600

Question 4(b). Which companies or industries have entered into an agreement with TVA for the use of industrial sites to be developed in conjunction with the Tellico project? Will TVA sell, lease or rent these sites?

As of this date, no formal agreements have been executed. Full industrial development is projected over a 25-year period after creation of the reservoir. Several companies have expressed interest in acquiring the land and have made onsite inspections. Some early interests have not survived the delays in the completion of the project. The site is considered attractive to industry because it contains large acreage of relatively level land in unified public ownership, with intermodal transportation (water, rail, and highway), a dependable water supply, and industrial zoning provided by the project and continued planning efforts by TVA in cooperation with the state and local governments and other federal agencies. All of the various types of land rights that can be conveyed under the TVA Act will be considered

in making these sites available; the type of conveyance actually used will in large part depend upon the industry's needs and the compatibility with long range developmental objectives of the project. The most typical types of land transfer are expected to be conveyance of fee interests and industrial easements.

Question 4(c). Why is the existence of a reservoir essential to industrial development in the Little Tennessee River Valley?

TVA has found during the 44 years of industrial development work in the Tennessee Valley that there are a few unique locations which are unusually favorable for the location economics of certain types of industry. These locations are areas where commercial barge transportation, rail service, highway connections, and large acreages of relatively flat land all come together at the same place. The Tellico project near Vonore now has all these advantages but a navigable waterway, and closing the Tellico Dam will provide the missing link. TVA's job estimate for Tellico is based on what has already happened whenever these unique locations have occurred in the Tennessee Valley. For example, the following waterfront industrial employment has already occurred at the following locations:

<u>Place</u>	<u>No. of Plants</u>	<u>No. of Jobs</u>
Paducah	12	900
Calvert City	8	2,800
New Johnsonville	8	2,600
Counce	3	500
Muscle Shoals	10	7,400
Decatur	22	7,300
Guntersville	16	1,500
Scottsboro-Stevenson	5	1,800
Chattanooga	27	13,500
Charleston-Calhoun	4	1,700
Clinton	5	1,000

Aside from the 5,000 acres being made available by Tellico, there are only about 1,400 acres of controlled navigable waterfront land available in east Tennessee above Chattanooga. In a letter dated March 16, 1977, to Tennessee

State Representative William C. Watson, a copy of which is attached as Exhibit 11, the Tennessee Department of Economic and Community Development stated: "As the industrial and economic development agency of Tennessee State Government, we consider this proposed [Tellico industrial] park and port facility to have one of the highest potentials in the state in terms of future industrial development."

This is not to say that the barge transportation link will be necessary for every industry that will locate in the Tellico area. The presence of industries using the water-transportation system will improve the location economics for plants that do not need that option but benefit due to the construction of new public services, the opportunity to take advantage of interindustrial processes and products, and reduced transportation costs because of competitive rates. By making water transportation available, along with the other locational advantages noted in the answer to 4(b) above, Tellico will provide the needed impetus for economic growth in the area. Even in the absence of barge transportation to the proposed Tellico industrial site, however, we would hope that the advantages already developed as a part of the Tellico project would attract to the area some needed industry, not requiring barge traffic.

Question 4(d). How do projections of revenues from renting, leasing or selling of these newly-acquired lands affect the cost-benefit analyses of the Tellico project? Please indicate specific dollar amounts used in your original and subsequent calculations.

Projected Average Annual Revenues of \$455,000 from renting, leasing, or selling of newly acquired lands are included on the benefit side of the benefit-cost analysis under shoreline development. The purchase price of the land, as well as the cost of acquiring and managing it, are included in the cost side of the benefit-cost analysis.

Question 5. Please summarize the energy, job, flood control and other benefits TVA has attributed to the Tellico Reservoir and Dam and provide a brief justification of these estimates.

The project benefits and how they were estimated is summarized as follows:

Energy. Tellico Dam and Reservoir will provide clean, renewable hydroelectric energy by diverting water from Tellico through the existing Fort Loudoun turbines, which were designed and constructed in the 1940's to handle the additional flow from the Little Tennessee River. This extra water will enable Fort Loudoun to generate an additional 200 million kilowatt-hours in an average year, enough energy to heat approximately 20,000 Tennessee Valley homes. This power benefit had an annual value of about \$400,000 in 1968 price levels, measured in terms of savings in TVA power system production expense that would have to be incurred if this energy were supplied from existing and future TVA power production facilities. The value of power is directly related to the savings in TVA's power system production expenses which have risen dramatically in the last 10 years, especially since the oil embargo. Recent estimates of the value of the power have reflected this rise and recognized a continuing increase in the cost of the Nation's energy resources. The expected annual value of the energy from Tellico over its life is now estimated at about \$3.5 million. Moreover, by using the renewable resource of falling water the project contributes to the conservation of scarcer fossil fuels. Specifically, to produce this much electricity using coal, oil, or gas, it would require the burning of 90,000 tons of coal, 15 million gallons of oil, or 1.8 billion cubic feet of natural gas every year.

Flood Control. Tellico reservoir will help control floods on the Tennessee River by providing an additional 126,000 acre-feet of flood storage

space. This will be the most flexible storage on the TVA system because the interconnecting canal between Fort Loudoun and Tellico will allow the interchange of storage capacity to help control uneven distribution of storm runoff. It is strategically located to provide storage on the main Tennessee River, where protection is vitally needed for the city of Chattanooga, the most vulnerable locality in the Tennessee Valley. The project will also aid in reducing flood damages to smaller communities and agricultural lands along the Tennessee River. Most of the flood control benefits will be downstream at Chattanooga, where the flood crest in a March 1973 flood could have been further reduced by at least two feet and about \$15 million in damages would have been averted if this additional storage had been available.

The flood control value was estimated based on the then-existing TVA system flood reduction value of \$4.02 per acre-foot of storage capacity, yielding an annual value of \$505,000 in 1968 price levels for the 126,000 acre-feet of storage at Tellico.

Navigation/Industrial Development/Jobs. One of the primary purposes of the project is to create long-term social and economic opportunities for an area in east Tennessee characterized by low incomes and the outmigration of young people. A navigation canal will join Tellico Reservoir with Fort Loudoun and extend commercial navigation approximately 30 miles up the Little Tennessee River to what will become one of the best industrial sites in east Tennessee, with 5,000 acres of developable land. The navigation benefit, estimated at \$400,000 per year in 1968 price levels, is based on savings derived from shipping various commodities by water as compared with the least expensive alternative method of transportation and will be achieved without the need to construct a lock, as the interreservoir

canal will allow the use of the existing Fort Loudoun lockage system. By providing these sites with access to river transportation as well as improved rail and highway access, TVA estimates 4,000 basic industrial jobs and 2,600 trades and services jobs will be created along the reservoir over a 25-year development period. By comparison, less than 200 families farmed portions of the 38,000 acres before the land was acquired for the project.

The new industries would have an annual payroll approaching \$27 million and the related trades and services jobs would have an annual payroll of about \$16 million. An enhanced employment benefit would be created from more productive use of the subemployed in these new jobs. Although not included in the benefit-cost study as a primary benefit, the equivalent annual value of enhanced employment would be about \$3,650,000 in 1968 price levels and has been included in the economic analysis as a secondary benefit. These job opportunities are the heart of the project. The three-county project area has a rural agrarian and extractive industry economy, typical of much of Appalachia. Low incomes and lack of economic opportunities has led to the outmigration of the area's youth, with some 20,000 persons leaving the three-county area between 1950 and 1970. Monroe County, in which about half of the project is located, currently has a per capita income of only 57 percent of the national figure. More than 26 percent of its families have income below the poverty level, and its current unemployment rate is about 12 percent. The three-county area affected by the project had more than 3,300 people on the unemployment rolls in 1976.

Recreation. The project will create an excellent recreation lake, 16,500 acres in size, nestled in a scenic setting between the Great Smokey Mountains National Park and the Cherokee National Forest. Because

of a small seasonal drawdown, Tellico Lake will be available for full public use the year round. Some 7,000 acres of shoreline and adjacent areas are set aside for public and private recreation development, and an additional 4,000 acres will be in open space for such uses as wildlife management, walkways and "green areas," or will be set aside for community open space type recreation activity. Major historical sites are being reconstructed or restored by TVA and will be features of parks or public recreation developments within the project area.

The primary recreation area at Tellico is in the upper reaches of the reservoir and will adjoin the Great Smoky Mountains National Park and the Cherokee National Forest, both heavily used for recreational purposes. The development of the recreational potential of the project area could relieve pressure on the park and forest facilities.

The recreation benefit was derived by applying Senate Document 97 values for various recreation uses to the number of recreation visits projected over the life of the project and discounted to obtain the annual equivalent benefit of \$1,440,000 in 1968 price levels.

Shoreline Development. In purchasing land for the Tellico project, as in other reservoirs, TVA has acquired land adjacent to the future reservoir in order to assure that its development and use is consistent with project purposes and provides benefits to the public, as well as to avoid unreasonable severage damages in some cases or undue expense in providing access to isolated tracks. The shoreline development benefit accounts for anticipated increases in market value as a result of enhanced land use potential created by the project. Enhancement was claimed only for those lands which do not have to be in restrictive use to achieve other project benefits and was estimated to be \$710,000 annually in 1968 price levels.

Fish and Wildlife. The net annual fish and wildlife benefit estimated for Tellico was valued at \$220,000 in 1968 price levels. It represents the difference between the value of fishing and hunting visits with the Tellico project and the value of those activities without the reservoir, using values ascribed to the various activities by Senate Document 97.

Water Supply. An annual water supply benefit of \$70,000 in 1968 price levels was calculated based on savings in the power requirement for pumping municipal and industrial water supplies from the elevated water level resulting from the creation of the reservoir.

Redevelopment. The redevelopment benefit with an equivalent annual value of \$15,000 in 1968 price levels has already been substantially realized. It represents the incremental value of fuller employment provided to the subemployed labor of the area during project construction and operation.

Note. For background, we are attaching as Exhibit 12 the Tellico Project Economic Analysis, as revised in 1971. If these benefit values were updated using the Consumer Price Index, their current annual value would be about \$13 million, with about \$7 million of this representing primary benefits.

TVA's environmental impact statement for Tellico contains a summary of these benefits (vol. I) as well as a critical analysis of TVA's estimates performed by a group at The University of Tennessee and TVA's rebuttal of the principal points raised (vol. III). In approving TVA's EIS, the district court complimented TVA's economic analysis, saying: "We can scarcely imagine a more satisfactory disclosure than that contained in [the] final statement."

Question 6. Please provide the Subcommittee with any information TVA has developed concerning (a) an updated benefit/cost analysis for Tellico and (b) benefit/cost information for alternative use proposals for the Little Tennessee River Valley.

The benefits were originally estimated as a part of the 1963 Tellico project planning report. The formal economic (benefit-cost) analysis for the Tellico project was performed in 1968 and reexamined in 1971-72 as a part of TVA's environmental impact statement review under the National Environmental Policy Act. Early in 1977 the benefit-cost analysis was again reexamined by a team from OMB, CEQ, DOI, the Corps, and TVA, as a part of President Carter's review of all water resource development projects. The benefit-cost ratio for remaining primary benefits and costs was found to be 7:1, using the same discount rate of 6-3/8 percent that the Water Resource Council guidelines specified for new projects, and not taking credit for the substantial secondary, enhanced employment benefits from Tellico. Attached is a summary sheet for Tellico which capsulizes data submitted for the President's review (Exhibit 13). In brief the analysis used a remaining cost to complete the project of \$11,500,000, which was converted to 1968 price levels for comparison with remaining benefits. Remaining annual costs were estimated at \$518,000 and remaining primary annual benefits at \$3,760,000, for a benefit-cost ratio of 7:1. Net remaining economic benefits were \$3,232,000. As a result of this review, the President approved the project for continued funding.

As this Subcommittee is aware, the GAO has recommended that TVA perform an updated remaining cost and remaining benefit analysis for Tellico and its alternatives. TVA has declined to follow this recommendation for the reasons stated in the letter dated December 13, 1977, from Aubrey J. Wagner to the Senate Committee on Governmental Affairs, attached as Exhibit 14.

Question 7. What additional costs are being incurred monthly as a result of the injunction by the Sixth Circuit Court prohibiting closure of the Tellico Dam?

Because the Tellico project was virtually completed, with the dam ready for closure at the time of the court's injunction, the primary loss is not escalating construction costs but is the nonrealization of project benefits for which over \$107 million in public funds has been invested. As stated in response to question 5, the current value of the primary benefits is about \$7 million annually in 1977 dollars. This does not include the secondary benefits such as jobs.

We have estimated the total construction escalation costs of a one-year injunction to be approximately \$400,000. With the advanced stage of completion, most of these costs will not be incurred on a monthly basis but will be one-time additional costs, such as the cost to reassemble construction crews to resume clearing operations and the return of earthmoving equipment to complete the canal excavation. Some costs will increase the longer the delay. For example, additional clearing would be necessary for vegetative growth that develops with each growing season.

Question 8. The most recent TVA estimates of snail darter populations in the Hiwassee River range from 1400-1800 fish. Are these figures based strictly on the standard transect counts used in fisheries studies? If not, on what are they based, and why does the method of estimation differ from that used in the Little Tennessee River?

The Hiwassee River estimates were projected from a known, initial population rather than from transect counts. (It should be noted, however, that transect counts are not standard in estimating fish populations.) Our fisheries biologists selected this method because they felt it offered more opportunity for a realistic estimate given the additional data we have for the Hiwassee. The method follows accepted practice and represents the

state of the art, given the restrictions imposed by the Endangered Species Act and the FWS. Using the transect method, divers count the number of fish seen in a measured area, but there is no way to evaluate their efficiency in making these observations. In other words, it is not known what proportion of the actual number are seen.

In making the population projection for the Hiwassee, our biologists used a number of facts concerning the sex ratio, age composition, number of eggs per female, and known, initial population size. In addition, we made conservative assumptions about the number of females who spawn and survival rates for each age group. From this information we were able to project the number of fish produced each year as well as the number dying each year. These projections, while not statistically testable (nor is data from the transect method), are, in the opinion of our biologists, as sound as the state of the art permits under the restrictions noted above.

The method used by TVA for the Hiwassee, like the transect method, is not standard for estimating fish populations. Typically, a mark and recapture method is used, but in this case FWS felt the method had destructive potential and denied TVA's request to conduct such a study. A permit was issued to mark 200 individuals but this proved to be an insufficient number to assess the total population in the Little Tennessee River.

Question 9. How much habitat suitable for the snail darter is present in the Hiwassee River compared with what remains in the Little Tennessee River?

As a result of TVA's biological investigations conducted as a part of TVA's snail darter conservation program, suitable habitat for the adult snail darter can be defined generally as an area of clean sand-gravel substrate with an abundance of certain preferred snail species and other invertebrate organisms in a relatively large river. Using these criteria, suitable habitat in the Hiwassee River amounts to approximately 33 percent of

the original habitat that was available in the Little Tennessee River. As detailed in the attached TVA biological report, "Population Age Structure and Distribution - Little Tennessee and Hiwassee Rivers" (Exhibit 15), recent biological evidence shows that the snail darter cannot maintain a viable, reproducing population in the Little Tennessee River with the dam structures in place, as its larvae drift downstream into Watts Bar Reservoir and cannot return upstream. The population in the Little T is being maintained by restocking efforts undertaken jointly by TVA and the FWS.

Question 10. Upon listing of the snail darter as endangered in November, 1975, were project modifications available which would have allowed completion of the project and preservation of the snail darter in its Little Tennessee river habitat?

No. Because of the design of the project and its advanced stage of completion, the only alternatives available at the time the darter was listed in November 1975 (the project was then over 75 percent complete) were to complete the project or to scrap it. See also answer 2b above. When TVA presented the question to Congress, through its Appropriations Committees, it was directed to complete the project as promptly as possible in the public interest.

LIST OF EXHIBITS

- Exhibit 1 - Tellico project, alternatives evaluated by TVA during environmental review
- Exhibit 2 - Tellico Dam and Reservoir, Construction Schedule as revised in October 1973
- Collective
- Exhibit 3 - Weekly Construction Force Reports (June 21, 1974; July 5, 1975 to January 3, 1976)
- Exhibit 4 - Timber Sale Contract No. TV-1098.677 (January 13, 1975)
- Exhibit 5 - Excerpt from Construction Progress Report (October 1975)
- Collective
- Exhibit 6 - Construction Specification No. TC-858 for Reservoir Clearing and drainage
- Letter of December 1, 1975, to Dr. James D. Williams from Thomas H. Ripley
- Memo of December 15, 1975, from Thomas H. Ripley to G. H. Kimmons regarding the Tellico project--Coordination of Reservoir Clearing Activities
- Collective
- Exhibit 7 - Letter of May 13, 1976, to Phillip S. Morgan from Lynn Seeber
- Letter of July 15, 1976, to Kenneth E. Black from Lynn Seeber
- Exhibit 8 - Table - Tellico Dam and Reservoir Cumulative Construction Costs by Years in Thousands of Dollars (With Appropriations)
- Exhibit 9 - Letter of July 20, 1977, to Senator John C. Culver from Dr. A. K. Guthe, Director of the McClung Museum and Professor of Anthropology, University of Tennessee
- Exhibit 10 - Letter of November 14, 1977, to Senator Malcolm Wallop from Aubrey J. Wagner
- Exhibit 11 - Letter of March 16, 1977, to William C. Watson from Thomas D. Benson, Commissioner of the Tennessee Department of Economic Community Development
- Exhibit 12 - Tellico Project Economic Analysis (with description)
- Exhibit 13 - Tellico project, data summary sheet submitted as a part of President Carter's review of Water Resource Development Projects (Spring 1977)
- Exhibit 14 - Letter of December 13, 1977, to Senator Abraham A. Ribicoff from Aubrey J. Wagner (with attachments)
- Exhibit 15 - TVA Snail Darter Conservation Program - Situation Assessment: "Population Age Structure and Distribution--Little Tennessee and Hiwassee Rivers" - (February 1977)

EXHIBIT 1

ALTERNATIVES EVALUATED BY TVA
DURING ENVIRONMENTAL REVIEW

<u>Project Design</u>	<u>Characteristics</u>	<u>Estimated Annual Costs</u>	<u>Estimated Annual Benefits</u>	<u>Estimated Net Annual Benefits</u>	<u>% Net Benefit to Tellico</u>
Lower dam	3200 acre pool extending 25 miles	\$1,426,000	\$4,986,000	\$3,560,000	60
Lower dam and scenic stream	3200 acre pool; 8 mile scenic stream	1,444,000	5,046,000	3,602,000	61
Intermediate dam	8000 acre pool extending 29 miles	1,745,000	5,245,000	3,500,000	59
Intermediate dam and scenic stream	8000 acre pool; 4 mile scenic stream	1,761,000	5,270,000	3,509,000	59
Scenic stream ^{1/}	33 mile scenic river corridor	82,000	211,000	129,000	2
No further action ^{1/}	Project abandonment	-0-	101,000	101,000	1.7
Tellico Project	Full pool level with Ft. Loudoun reservoir	1,507,000	7,410,000	5,903,000	100

1. Excludes cost of removing Tellico Dam and restoring area.

EXHIBIT 3

CONSTRUCTION FORCE REPORT

PROJECT Tellico PAYROLL 490418
 FOR WEEK ENDING June 21, 1974

Classification	Journeyman & Apprentices (excluding Minority)				Minority				Foremen				Total	Number Terminated	Number Hired
	White	Black	Hispanic	Other	White	Black	Hispanic	Other	White	Black	Hispanic	Other			
Boilermakers	1	2	3		1	2	3		1	2	3				
Carpenters	2												2		
Millwrights															
Electricians															
Iron Workers	1								1				2		
Steamfitters	5	3							1				9		
Teamsters	7	2							1				10		
Laborers	39	17	10		5	2	1		2	2			78		10
Operating Engineers	42	13	2						3				60		3
Painters															
Sheet Metal Workers															
Gas & Diesel Mechanics															
Cement Masons															
Machinist	1												1		
Totals	97	35	12		5	2	1		8	2			167		13

CONSTRUCTION FORCE REPORT
 PROJECT CEB, Tallico Dam PAYROLL 440418
 FOR WEEK ENDING July 05, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total
Boilermakers										
Carpenters	9									9
Millwrights										
Electricians	1	1								2
Iron Workers	5						1			6
Steamfitters	7	1	1				1			10
Teamsters	2	1					1			13
Laborers	50	18	14		10		4	2	1	99
Operating Engineers	50	20	2		1		5	1	1	81
Painters										
Sheet Metal Workers										
Gas & Diesel Mechanics										
Cement Masons										
Machinist-Air Tool Repair	1									1
TOTALS	128	42	19		11		12	3	2	201
										16

CONSTRUCTION FORCE REPORT

PROJECT CBR, Tallien Dam PATROLL MON18

FOR WEEK ENDING July 12, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			Total	No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3			
Boilermakers												
Carpenters	79						1			98	2	1
Millwrights												
Electricians	1	1								2		
Iron Workers	53						1			61	2	
Steamfitters	16	1	1				1			10	1	
Teamsters	19	2	1				1			14	1	1
Laborers	43	18	21		11		4	2	2	101	22	4
Operating Engineers	44	20	11	1			5	1	2	84	5	23
Painters												
Sheet Metal Workers												
Gas & Diesel Mechanics												
Cement Masons												
Machinist-Air Tool Repair	1									1		
TOTALS	327	42	37	13			12	3	8	225	28	5
	116		34				13		14	204	4	5

CONSTRUCTION FORCE REPORT

PROJECT CRB, Tellico Dam PAYROLL 40418FOR WEEK ENDING JULY 19, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	4						1			2	2
Millwrights											
Electricians	1	1								2	
Iron Workers	3						1			4	
Steamfitters	6	1	1				1			9	
Teamsters	18	2	1				1			22	1
Laborers	43	18	21			11	4	2	1	101	
Operating Engineers	45	20	11			1	5	1	2	85	1
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1									1	
TOTALS	116	42	34			12	13	3	4	290	2

CONSTRUCTION FORCE REPORT

PROJECT CSB, Yalisco Dam PAYROLL 120018
 FOR WEEK ENDING July 26, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Total	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3		
Boilermakers											
Carpenters							1			1	6
Millwrights	1										
Electricians	1	1								1	
Iron Workers	3									4	
Steamfitters	6	1	1				1			9	
Welders	12	2	1				1			16	1
Laborers	43	18	21			11	4	2	1	101	
Operating Engineers	45	20	11			1	5	1	2	85	1
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Mechanist-Air Tool Repair	1									1	
TOTALS	118	42	34			12	13	3	4	280	6

CONSTRUCTION FORCE REPORT

PROJECT 689, 741100-2-00 PAYROLL 1104130
 FOR WEEK ENDING August 01, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Term	Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boil makers											
Carpenters	1						1			2	
Millwrights											
Electricians	1	1								3	
Iron Workers	3						1			4	
Steamfitters	6	1	1				1			9	
Teamsters	11	2	1				1			15	1
Laborers	43	19	21	11			4	2	1	101	1
Operating Engineers	15	21	16	1			5	1	1	91	6
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1									1	
TOTALS	111	44	39	12			13	3	3	205	7

CONSTRUCTION FORCE REPORT
 PROJECT CSB, Tellico Dam PAYROLL 110118
 FOR WEEK ENDING August 08, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Total	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3		
Boilermakers											
Carpenters											
Millwrights	1						1			2	
Electricians	1	1								2	
Iron Workers	3						1			4	
Steamfitters	6	2	1				1			10	1
Teamsters	12	3	2				1			18	3
Laborers	43	19	19	10		1	4	2	1	99	2
Operating Engineers	45	24	20	1			5	1	1	97	17
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Technician-Air Tool Repair	1									1	
TOTALS	112	49	42	11		1	11	1	2	233	29

CONSTRUCTION FORCE REPORT

PROJECT CEL, Tallon Dam PAYROLL 14642
 FOR WEEK ENDING August 15, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Total	No. Total Rired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3		
Boilermakers											
Ironworkers	2						1			3	1
Millwrights											
Electricians	1	1					2			2	
Iron Workers	3						1			4	
Steamfitters	6	2	1				1			10	
Teamsters	12	4	2				1			19	1
Laborers	42	19	43			10	4	2	1	98	1
Operating Engineers	46	24	21	1			5	1	1	99	2
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist/Air Tool Repair	1									1	
TOTALS	113	50	43	11			13	3	2	236	4

CONSTRUCTION FORCE REPORT

PROJECT CSB, Tallapoosa Payroll MonthFOR WEEK ENDING August 22, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	2						1			3	
Millwrights											
Electricians	1	1								2	
Iron Workers	3						1			4	
Steamfitters	7	2	1				1			11	1
Teamsters	12	4	2				1			19	1
Laborers	43	20	19		10	1	4	2	1	100	2
Operating Engineers	46	24	23		1		5	1	1	101	3
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist/Air Tool Repair	1									1	
TOTALS	115	51	43		11	1	13	3	2	241	7

CONSTRUCTION FORCE REPORT

PROJECT CSB, Valley Dam PAYROLL 11/10/58FOR WEEK ENDING August 23, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			Total	No. Term.	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3			
Boilermakers												
Carpenters	2						1			3		
Millwrights												
Electricians	1	1								2		
Iron Workers	3						1			4		
Steamfitters	7	2	1				1			11		
Teamsters	13	4	2				1			20		1
Laborers	43	21	10			9	4	2	1	100	1	1
Operating Engineers	46	23	22			1	5	1	1	99	2	
Painters												
Sheet Metal Workers												
Gas & Diesel Mechanics												
Cement Masons												
Machinist-Air Tool Repair											1	
TOTALS	114	52	44			10	13	3	2	239	4	2

CONSTRUCTION FORCE REPORT
 PROJECT CSB, Tellico Dam PAYROLL 440418
 FOR WEEK ENDING September 02, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	2						1			3	
Millwrights											
Electricians	1	1								2	4
Iron Workers	3						1			4	
Steamfitters	9	2	1				1			13	1
Teamsters	12	3	2				1			18	
Laborers	38	20	20	9		1	4	2	2	96	1
Operating Engineers	54	24	24	1			5	1	1	110	
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist*Air Tool Repair											
TOTALS	119	90	49	10		1	13	3	3	246	2

CONSTRUCTION FORCE REPORT

PROJECT CR, Tallico Dam PAYROLL 110418FOR WEEK ENDING September 19, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total
Boilermakers										
Carpenters	2						1			3
Millwrights										
Electricians	2	1								3
Iron Workers	3						1			4
Steamfitters	9	2	1				1			13
Teamsters	14	4	3				1			22
Laborers	37	20	20	8			4	2	2	93
Operating Engineers	55	26	25	1	1		5	1	1	115
Painters										
Sheet Metal Workers										
Gas & Diesel Mechanics										
Cement Masons										
Machinist-Air Tool Repair										
TOTALS	122	53	49	9	1		13	3	3	253
										10

CONSTRUCTION FORCE REPORT

PROJECT - GCS, Bellco - Bay PATROLL - 140419

FOR WEEK ENDING September 20, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Police			No. Turn	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Rollersmakers											
Carpenters											
Millwrights	2						1			3	
Electricians	2	1								3	
Iron Workers	3						1			4	
Steamfitters	9	2	1				1			13	
Tenasters	11	1	1				1			22	
Laborers	36	20	20	7			4	2	2	91	2
Operating Engineers	55	29	25	1	1		5	1	1	118	3
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist/Air Tool Repair											
TOTALS	121	56	49	8	1		13	3	3	254	3

CONSTRUCTION FORCE REPORT

PROJECT C&D Ballast Dam PAYROLL 11-01-18
 FOR WEEK ENDING November 26, 1979

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Total	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3		
Boilermakers											
Carpenters											
Millwrights	2						1			3	
Electricians	2	1								3	
Iron Workers	1						1			5	1
Steamfitters	7	2	1				1			11	3
Teamsters	11	1	3				1			22	
Laborers	37	20	20	7			4	2	2	92	1
Operating Engineers	56	29	25	1	1		5	1	1	119	1
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist/Air Tool Repair											
TOTALS	122	56	49	4	1		13	3	3	255	3

CONSTRUCTION FORCE REPORT

PROJECT 433, Seales-Dee PAYROLL 110418
 FOR WEEK ENDING October 3, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term.
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total
Boilermakers										
Carpenters	4						1			5
Millwrights										2
Electricians	2	1								3
Iron Workers	4						1			5
Steamfitters	7	2	1				1			11
Teamsters	14	4	1				1			22
Laborers	37	20	20				4	2	1	93
Operating Engineers	56	29	25	4	1		5	1	1	119
Painters										
Sheet Metal Workers										
Gas & Diesel Mechanics										
Cement Masons										
Machinists-Air Tool Repair										
TOTALS	144	56	49	9	2		13	3	2	258

CONSTRUCTION FORCE REPORT

PROJECT CBS, Salinas Dam PAYROLL 110418
 FOR WEEK ENDING October 10, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term.	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	6						1			7	2
Millwrights											
Electricians	2	1								3	
Iron Workers	5						1			6	1
Steamfitters	7	2	1				1			11	
Teamsters	11	1	3				1			22	
Laborers	38	20	20	8	1		4	2	2	95	3
Operating Engineers	57	29	25	1			5	1	1	119	
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair											
TOTALS	129	56	49	9	1		13	3	3	263	6

CONSTRUCTION FORCE REPORT

PROJECT CBR - Talliso Dam PATROLL MONAIR

FOR WEEK ENDING October 18, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Term. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total
Boilermakers										
Carpenters	6						1			7
Millerwrights										
Electricians	2	1								3
Iron Workers	5						1			6
Steamfitters	7	2	1				1			11
Tenmasters	14	4	3				1			22
Laborers	38	21	20	8	1		4	2	2	96
Operating Engineers	60	27	17	2			5	1	1	113
Painters										6
Sheet Metal Workers										
Gas & Diesel Mechanics										
Cement Masons										
Machinist/Air Tool Repair										
TOTALS	138	85	41	10	1		13	3	3	298

CONSTRUCTION FORCE REPORT

PROJECT CRB-Tolliso Dam PAYROLL 11/01/75FOR WEEK ENDING October 25, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term.	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Bollermakers											
Carpenters	6						1			7	
Millwrights											
Electricians	2	1								3	
Iron Workers	5						1			6	
Steamfitters	7	2	1				1			11	
Teamsters	14	4	1				1			22	
Laborers	438	21	20	8	1		4	2	2	96	
Operating Engineers	61	28	17	2			5	1	1	115	2
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair											
TOTALS	133	56	41	10	1		13	3	3	260	2

CONSTRUCTION FORCE REPORT

 PROJECT — CSD, Police Dam — PAYROLL — 110412
 FOR WEEK ENDING October 11, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	6						1			7	
Millwrights											
Electricians	2	1								3	
Iron Workers	5						1			6	
Steamfitters	7	2	1				1			11	
Teamsters	14	4	3				1			22	
Laborers	38	22	20	8	1		4	2	2	97	1
Operating Engineers	61	28	17	2			5	1	1	115	
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair											
TOTALS	133	57	41	10	1		13	3	3	261	1

CONSTRUCTION FORCE REPORT

PROJECT SEA-Wall-Dee-Dee PAYROLL 11-01-59
 FOR WEEK ENDING November 07, 1959

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			Total	No. Term	No. Mixed
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3			
Boilermakers												
Carpenters	10						1			11		4
Millwrights												
Electricians	2	1								3		
Iron Workers	4						1			5	1	
Steamfitters	7	2	1				1			11		
Tenasters	14	4	3				1			22		
Laborers	39	24	19				4	2	2	99	1	3
Operating Engineers	61	28	17				5	1	1	115		
Painters												
Sheet Metal Workers												
Gas & Diesel Mechanics												
Cement Masons												
Machinist-Air Tool Repair												
TOTALS	137	99	40				13	3	3	266	2	7

CONSTRUCTION FORCE REPORT

PROJECT CRA-Tallon Dam PAYROLL 11/01/75FOR WEEK ENDING November 11, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			Total	No. Term.	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3			
Millwrights												
Carpenters	10						1			11		
Millwrights												
Electricians	2	1								3		
Iron Workers	3						1			4	1	
Steamfitters	8	2	1				1			12		1
Teamsters	13	1	1		2		1			23	1	2
Laborers	36	26	18		8	1	4	1	2	94	6	1
Operating Engineers	53	27	15		2		4	1	1	103	12	
Painters												
Sheet Metal Workers												
Gas & Diesel Mechanics												
Cement Masons												
Machinist-Air Tool Repair	1									1		1
TOTALS	126	59	37		12	1	12	2	3	251	20	5

CONSTRUCTION FORCE REPORT

PROJECT CSB-Fallco Dam PAYROLL 11/1/75FOR WEEK ENDING November-02, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	10						1			11	
Millwrights											
Electricians	2	1								3	
Iron Workers	1						1			5	1
Steamfitters	9	2	1				1			13	1
Teamsters	13	4	3	2			1			23	
Laborers	12	29	19	8	1		1	1		106	1
Operating Engineers	52	27	17	2			1	1	1	101	5
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1									1	
TOTALS	133	63	40	12	1		12	2	3	266	19

CONSTRUCTION FORCE REPORT

PROJECT CSB-Tullico Dam PAYROLL 11/01/18FOR WEEK ENDING November 29, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	10						1			11	
Millwrights											
Electricians	2	1								3	
Iron Workers	3						1			4	1
Steamfitters	9	2	1				1			13	
Teamsters	13	1	3				1			23	
Laborers	42	31	19	8	1		4	1	2	108	2
Operating Engineers	52	27	17	2			4	1	1	104	
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1									1	
TOTALS	332	65	40	30	1		32	2	3	367	3

CONSTRUCTION FORCE REPORT

PROJECT CSE-Tellco Inn PAYROLL 440418

FOR WEEK ENDING December 03, 1979

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Term.	No. Mixed
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3		
Boilermakers											
Carpenters	10						1				11
Millwrights											
Electricians	2	1									3
Iron Workers	4						1				5
Steamfitters	7	2	2				1	1			12
Teamsters	14	4	3		2		1				24
Laborers	43	30	19	8	1		4	2	1	2	108
Operating Engineers	48	24	17	2			4	1	1	18	97
Painters											93
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1										1
TOTALS	129	61	41	10	3		12	3	2	20	267
	129										267
											215

CONSTRUCTION FORCE REPORT

PROJECT CSB T2 11100 Marshall 440418

FOR WEEK ENDING Dec 13-23

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3		
Boilermakers											
Carpenters	10						1				11
Millwrights											
Electricians	2	1									3
Iron Workers	4						1				5
Steamfitters	5	3	3				1				12
Tenasters	11	4	3			2	1				21
Laborers	44	26	20	8	1		4	2	1		106
Operating Engineers	46	23	16	2			5	1	1		94
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist Air Tool Repair	1										1
TOTALS	123	59	42	10	3		13	3	2		253
											9
											5

CONSTRUCTION FORCE REPORT

PROJECT CER-Relics Dam PAYROLL 110018FOR WEEK ENDING December 30, 1973

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foreman			No. Term	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	10						1			11	
Millwrights											
Electricians	2	1								3	
Iron Workers	4						1			5	
Steamfitters	5	3	3				1			12	
Teamsters	11	4	3		2		1			21	
Laborers	44	26	20	8	1		4	2	1	105	
Operating Engineers	47	22	16	2			5	1	1	94	5
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist/Air Tool Repair	3									3	
TOTALS	124	56	42	10	3		13	3	2	233	5

CONSTRUCTION FORCE REPORT

PROJECT CSR-Gallico Dam PAYROLL 11/01/18

FOR WEEK ENDING

December 27, 1975

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Tern.	No. Hired
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	
Boilermakers											
Carpenters	10						1			11	
Millwrights											
Electricians	2	1								3	
Iron Workers	4						1			5	
Steamfitters	5	3	3				1			12	
Teamsters	11	4	3			2	1			21	
Laborers	44	26	20	8	1		4	2	1	106	
Operating Engineers	47	22	16	2			5	1	1	94	
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1									1	
TOTALS	124	56	42	10	1		11	1	2	253	

CONSTRUCTION FORCE REPORT

PROJECT CEB-Tellico Dam PAYROLL MonthsFOR WEEK ENDING January 03, 1976

Classification	Journeyman & Apprentices (excluding Minority)			Minority			Foremen			No. Hired	
	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Total	Term
Boilermakers											
Carpenters	9						1			10	1
Millwrights											
Electricians	2	1								3	
Iron Workers	4						1			5	
Steamfitters	6	3	3				1			13	1
Teamsters	11	4	3				1			20	1
Laborers	44	25	20	8	1		4	2	1	105	1
Operating Engineers	45	22	16	2			5	1	1	92	2
Painters											
Sheet Metal Workers											
Gas & Diesel Mechanics											
Cement Masons											
Machinist-Air Tool Repair	1									1	
TOTALS	122	53	42	10	2		13	3	2	246	5

TENNESSEE VALLEY AUTHORITY
TIMBER SALE CONTRACT

Ken Wilson
Contractor
6827 Dorchester Drive
Address
Knoxville, Tennessee 37919

Contract No. TV-1098-677
Reservoir Tellico
Issued January 11, 1975
Expires June 1, 1975

Is hereby authorized to cut and remove designated timber from tracts shown on the attached map subject to the conditions set forth below and attached hereto during the period January 13, 1975 to June 1, 1975.

A. Description of timber, estimated quantity, and unit price:

Item No.	Description	Estimated Quantity*	Unit	Unit Price
1.	Shortleaf and Virginia Pine	37,737	MBF	
2.	Red and Black Oak	68,067	MBF	
3.	White Oak	79,038	MBF	
4.	Yellow Poplar	65,448	MBF	
5.	Sweet Gum	4,608	MBF	
6.	Walnut	17,685	MBF	
7.	Cherry	7,668	MBF	
8.	Miscellaneous	<u>144,243</u>	MBF	
	Total	<u>474,494</u>	MBF	xxxxxxx
9.	Hardwood Pulpwood	330	Sta. Cds.	
10.	Pine Pulpwood	<u>140</u>	Sta. Cds.	
	Total	<u>470</u>	Sta. Cds.	xxxxxxx
Total contract price - all items		\$ <u>8500.50</u>		

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B. Conditions

*The bidder is advised to satisfy himself as to the accuracy of said estimate before entering his bid. No adjustment will be made for variation between the estimate here given and the volume cut and removed.

C. Acceptance

Accepted 1-13-75, 1975 Executed Jan 13, 1975
Ken Wilson Ken Wilson

D. ADDITIONAL CONDITIONS

1. **RIGHT TO REJECT OR WAIVE** - TVA reserves the right to reject any and all bids and to waive any irregularity in bids.
2. **PERFORMANCE BOND** - Contractor shall within ten (10) days of date of award of this contract deposit with TVA an acceptable performance bond or money order or cashier's check made payable to Tennessee Valley Authority in the amount of 30 percent of the contract price which shall be held by TVA as a guarantee of performance. Said deposit will be returned to Contractor after completion of this contract in a manner satisfactory to TVA. The deposit and all payments on this contract shall be delivered or mailed to Tennessee Valley Authority, Box 606, 1101 Congress Parkway, Athens, TN 37703.
3. **STUMP HEIGHTS** - Stumps of all trees cut between the 792-foot contour elevation and the 815-foot contour elevation shall be cut flush with the ground if possible and in no case shall the stump extend more than 4 inches above ground level, except as approved by TVA. Trees cut below the 792-foot contour shall be cut no higher than 12 inches above ground level. The 792-foot contour will be estimated in the field jointly by the Contractor and TVA.
4. **ORDER OF LOGGING** - The various units of the sale area shall be logged in the following order: Begin on north end of sale area and proceed in an orderly manner to the south end of the sale area. All phases of the logging operation shall keep pace with another and each unit shall be satisfactorily completed before operations are started on a new unit.
5. **CUTTING SHALL BEGIN** - Within 20 days after the contract has been awarded.
6. **NO WARRANTY** - All timber offered in this proposal is offered "where is and as is" without recourse. No representation, warranty, or guaranty is made by the TVA as to the quantity, quality, condition, size, or description, other than the estimate of quantity as shown in this proposal, which is given only for the general guidance of bidders, and any discrepancy between estimated and actual volume will not affect the validity of the sale or be considered the basis of a claim. No representative of TVA is authorized to make any statement or representation as to the quantity, character, condition, size, or kind of any timber offered for sale, and any such statement will not be binding on the TVA. No claim for recoupment, allowance, or otherwise upon any of the grounds aforesaid will be considered. U
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7. **PAYMENT** - Within 10 days after notification of award of the contract, the Contractor shall pay TVA 33-1/3 percent of the total contract price. Additional payments of 33-1/3 percent V
A of the total contract price shall be made by the Contractor upon completion of 33-1/3 and 66-2/3 percent, respectively, of the cutting operations by volume or dollar value as determined by TVA. The final payment shall be made, by the Contractor, before May 1, 1975, upon completion of the cutting progress. Such payments shall be made within one week of the date of the invoice.
8. **CUTTING LIMITATIONS** - Only trees within the sale area shall be felled. Unmarked or undesignated trees which are cut, or unauthorized removal of logs or other material shall be paid for at twice the current market value of logs delivered to the sawmill. Merchandise material needed for the construction of logging improvements shall be designated by the TVA and paid for at prices bid or comparable thereto.
9. **UNDESIRABLE FOREST PRODUCTS** - Throughout the term of this contract the Contractor may use the following material resulting from the felling of trees designated for cutting: cull material, tops, and bark.
10. **ASSIGNMENT OF CONTRACT** - This contract is not assignable, and shall not be subject in whole or in part except with written approval of TVA.
11. **SUSPENSION OF CONTRACT** - All operations covered by this contract may be suspended and/or terminated by written notice from TVA, without liability, if Contractor fails, in the judgment of TVA, to comply with any or all conditions of this contract.
12. **IMPROVEMENTS** - Any and all improvements including those to the nature and location of roads, concentration yards, and loading sites to be made by Contractor in performing this contract require advance approval by TVA. All structural improvements are to be removed on or before the date of completion of this contract, unless otherwise agreed upon. No gravel sites will be permitted on TVA land.

ADDITIONAL CONDITIONS (continued)

13. **CROSSING PRIVATE PROPERTY** - Contractor shall be responsible for securing permission to cross private property, as may be convenient or necessary, in the performance of this contract.
14. **SUPPRESSION** - Contractor and his employees shall do all in their power, both independent and upon request of TVA, to prevent and suppress forest fires.
15. **SPECIAL REGULATIONS** - All operations performed under this contract shall conform to such rules and regulations as TVA may prescribe.
16. **SANITATION** - When occupying or using TVA owned or controlled lands in performing this contract, Contractor, his agents, subcontractors, and employees shall conform to all applicable laws, rules, and regulations relating to health and sanitation, particularly those rules and regulations requiring provisions of safe drinking water and sanitary disposal of waste, garbage, and excreta.
17. **LIABILITY FOR DAMAGE TO TVA PROPERTY** - All timber, standing or down, which is damaged through any cause attributable to Contractor, or damaged or killed by fires which Contractor or his employees cause, or the origin or spread of which they could reasonably have prevented, shall be evaluated by TVA and paid for by Contractor. All improvements on TVA's property shall be protected as far as possible in logging operations and, if damaged, shall be repaired immediately by Contractor; upon failure of Contractor to comply, repairs may be made by TVA at Contractor's expense.
18. **LIABILITY** - TVA makes no warranties or representations concerning the premises covered by this contract or any means of ingress thereto or egress therefrom. Contractor assumes all risk of and shall save TVA harmless from all liability for any personal injury, loss of life, or property damage resulting from or in any way connected with his operations hereunder; with the condition or use of the premises; or any means of ingress thereto or egress therefrom, suffered or sustained by Contractor, members of his family or his agents, employees, and invitees.
19. **RESERVOIR FLUCTUATION** - TVA assumes no liability for damage or loss caused by fluctuation of reservoir levels.
20. **ELIGIBILITY** - No member of or delegate to Congress or resident Commissioner shall be admitted to any share or part of this contract or to any benefit to arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.
21. **SLASH DISPOSAL** - Slash and other debris shall not be left in creeks, streams, or drainage ditches.
22. **DISPUTES** - Except as otherwise specifically provided in this contract, all disputes concerning questions of fact arising under this contract shall be decided by the Director of Division of Reservoir Properties, whose decision shall be final and conclusive upon the parties hereto as to such questions of fact. If it becomes necessary to scale timber in order to determine compliance with contract provisions, the International Log Rule "44" Kerf shall be used.
23. All logging roads, skid trails, concentration yards, and loading sites on project lands above elevation 815 will be restored, graded, and seeded by Contractor to prevent erosion.
24. **AREAS EXCLUDED FROM SALE** - Timber is not to be cut or removed from areas shown shaded in blue on attached map. Trees in these areas are marked with blue paint. Timber is not to be cut or removed from the areas shown shaded in green on the attached map. These areas are not in TVA possession and their boundary line trees have been marked with green paint.
25. Much of the land in the sale area is under license to third parties for agricultural purposes. The timber operator shall exercise caution to hold the damage of crops and fences to a minimum.



TENNESSEE VALLEY AUTHORITY
CONSTRUCTION SERVICES BRANCH

CONSTRUCTION PROGRESS

DURING THE MONTH OF

October 1975

(EXCERPT)

Gene Tamm
CHIEF, CONSTRUCTION SERVICES BRANCH

EXHIBIT 5

CONSTRUCTION SERVICES BRANCHACTIVITIES REPORT

October 1975

SELECTED ITEMS

Clearing for the Tellico Reservoir began on September 29.

The 1000-foot-high chimney shell for Widows Creek units 1-6 was "topped out" October 4.

Construction of the new ash pond at Allen Steam Plant commenced on October 6.

Grading for the Cordova substation was completed October 7.

Rentenbach Engineering Company, contractor for the new Bull Run precipitator, reported to the site October 13.

Placement of earthfill for the main dam at Little Bear Creek was completed October 23.

CONSTRUCTION GROUP ACTIVITIESFort Patrick Henry Dam

Concrete repairs to the spillway were begun on October 6. The access road was completed, and the splashboards were set in preparation for dewatering of the spillway apron. Dewatering was completed, and concrete was placed for a new baffle. Removal of the old baffle and cleaning spillway drains were continued.

Gallatin Steam Plant

The control and communication cables for the gas turbine remote control job were tested. Finish grading work in the switchyard area was started. Conduit and cable were run from the powerhouse to the main gate for the new electrically operated gate.

Painting continued for fuel tank No. 2, and sandblasting began for tank No. 1.

Alabama Roofing and Sheetmetal Company reported to the project on Wednesday, October 8, and began roof installation for the limestone handling facilities.

Global Lagging returned to the job on Monday, October 20, and began placing insulation on the fan housing and outlet gas ducts.

Units 1-6 Precipitators--Custodis Construction Company completed concrete for the new chimney Saturday, October 4, and began dismantling equipment and erecting the balconies and rest platforms.

Great Falls Reservoir

Bridge Builders, a subcontractor, placed concrete for the final lift of the north abutment early in the month and began placing decking on the bridge steel.

Bull Run Steam Plant

Precipitator Turnkey--Rentenbach Engineering Company, contractor for the turnkey electrostatic precipitator addition, moved on site on October 13. Its work to date consists of setting up office facilities and beginning exploratory drilling operations for precipitator foundations.

Ash Pond--To date, nearly 205,000 cubic yards of earth has been placed to raise the ash pond dikes. Ash removal has exceeded 66,000 cubic yards. In addition to earthwork, the placement of crushed stone and riprap was continued and advanced to 95 percent complete. Seeding and mulching were begun and continued throughout the period.

Tellico Project

Tellico Dam--Earthfill placement continued in the east channel below the upstream cofferdam with 35,500 cubic yards being placed. Fill activity also included the placement of 1,260 cubic yards on the main embankment, 685 cubic yards on the right abutment, and 2,700 cubic yards on saddle dam No. 1. Excavation of the cutoff trench across the east channel continued. The sump was installed at station 20+50+, and 1,390 cubic yards of fill concrete was placed in this area. Excavation and cleaning of rock were completed for the cutoff trench between stations 28+00 and 30+00, and 146 cubic yards of fill concrete was placed. The mixing plant was erected and placed in operation on October 20 and supplied 29 percent of the concrete used during the month. Riprap placement was continued on saddle dam No. 1 and nears completion.

Tellico Reservoir Clearing--Clearing in the Tellico Reservoir was begun on September 29. Approximately 50 acres has been cleared, and seeding and mulching were begun.

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Tellico Reservoir--On Highway 72, project 2120, placement of fill continued near the L&N overpass and was begun near the triple box culvert at station 229+55. Formwork for the bottom slab of the triple box culvert was begun while clearing operations continued between Bat Creek and Fork Creek. The placing of earthfill and crushed stone surfacing was completed, and placing of riprap began on project 7055, Notchy Creek Road. Placing of fill was continued on project 7055, Citico-Chilhowee Dam Road, and 7034, West Fork Hicks Creek Road. On project 3221, River Road, placing of earthfill and installation of drainage structures were continued. Placing of stabilized base began on projects 3221, River Road, and 3222, Gap Road. At Baker Creek, the precast concrete beams were set, and formwork was begun for the abutment and pier diaphragms. Driving of piling at Sinking Creek Bridge abutment No. 2 was started. Setting of timber guardposts was completed on projects 7014, East Notchy Knobs Road, and 7033, Notchy Knobs Road.

A. J. Metler, subcontractor on project 381, L&N Railroad Bridge superstructure, completed tightening bolts and removed the falsework from beneath the main truss span. Painting of the superstructure was completed, and Associated Electrical Contractors began installation of electrical conduit for the pier lighting. Oman Construction Company, contractor on project 301, L&N Railroad relocation, completed placing stabilized base along with seeding and mulching slopes. McDowell-Purcell, contractor on project 7044, Citico Road, completed setting timber guardposts, concrete right-of-way markers, and seeding and mulching slopes, along with placing double bituminous surface treatment on projects 7044 and 7028, Four Mile Creek Road.

Fontana Dam

Calyx drilling of the 36-inch-diameter hole for the secondary seal was completed on October 22. Excavation of rock and earthfill downstream of the slot and preparation of the upstream face of the dam for installation of the seal began and continued throughout the month. Installation of the strain meters in the gallery at elevation 1630 was completed.

Drilling and Soil Sampling

Core drilling at Sequoyah Nuclear Plant for the east steam valve rooms and the Johnson Bend seismic correlation drilling at Kingston Steam Plant were continued. Mobilization was completed, and core drilling began on October 1 at the Town Creek site and continued throughout the month. The two pneumatic drills were moved to Cedar Creek Dam site, and percussion drilling began on October 22 for the north sluiceway alternate location.

Soil sampling for the barge-rail transfer station at Gallatin Steam Plant was completed October 3. Soil sampling began for Columbia Reservoir road projects on October 7 and was completed October 23. Soil sampling at the Yellow Creek site began on October 7 and is still in progress.

EMPLOYMENT DISTRIBUTION

October 25, 1975

	<u>Constr.</u> <u>Annual</u>	<u>Engg.&Insp.</u> <u>Services</u> <u>Annual</u>	<u>Hourly</u>
Knoxville			
Branch administration		6	
Construction	11		
Engineering		20	
Equipment Management		23	
Singleton operations	3		20
Materials Engg. Laboratory		36	1
Upper Bear Creek Dam	2	1	44
Tellico	10	22	288
Tellico Reservoir	5		215
Tellico Clearing	2		44
Little Bear Creek	5	6	170
Drilling and soil sampling			27
Fort Patrick Henry			7
Marine & Constr. Equipment Section	4		44
Widows Creek scrubber	11	5	172
Kingston	2	2	44
Ocoee 1 strengthening dam	1	1	48
Gallatin			10
Paradise	2		57
Cumberland	18	3	140
Johnsonville	6	2	225
Colbert	7	1	118
Shawnee		1	6
Bull Run ash pond	1		23
Paving	1		10
Fontana Dam repairs	1		15
Chickamauga mooring cells	1		11
Allen ash pond	<u>1</u>		<u>9</u>
Total	94	129	1,748

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<u>Month</u>	<u>Number of Employees</u>	<u>Payroll</u>
May	1,946	\$2,351,969
June	1,935	2,956,004
July	1,993	2,122,628
August	2,001	2,254,970
September	1,937	2,648,437
October	1,971	2,118,818



TENNESSEE VALLEY AUTHORITY
DIVISION OF ENGINEERING DESIGN



TELLICO RESERVOIR

CONSTRUCTION SPECIFICATION

NO. TC-858

FOR RESERVOIR CLEARING AND DRAINAGE

	REVISION	R1	R2	R3	R4	R5
Date	July 17, 1974	1/21/76				
SPONSORED	*J. R. Fox	JRF				
SUBMITTED	*F. D. Stansberry	FDS				
CONCURRED						
RECOMMENDED (Sponsor Branch Chief)	*W. W. Engle	WWE				
SPEC. CONTROL	*P. L. Duncan	PLD				
APPROVED (Dir. of Construction)	*H. H. Mull	HHM				
APPROVED (Dir. of Eng. Dsgn.)	*Roy H. Dunham	RHD				

*original signed by

**CONSTRUCTION SPECIFICATION FOR RESERVOIR CLEARING AND
DRAINAGE - TELlico RESERVOIR**

REVISION LOG
 TC-858

Revision No.	DESCRIPTION OF REVISION	Date Approved
1	<p>The Construction Specification was revised as follows:</p> <ul style="list-style-type: none"> a. Section B.1.a.(1) - The upper limit of zone 1 was changed from 792 contour to 794 contour. b. Section B.1.a.(2) - The lower limit of zone 2 was changed from 792 contour to 794 contour. c. Within the text where elevation 797 appeared, it has been changed to elevation 794. d. Section D. <u>Special Instructions and Exceptions to Clearing</u> <ul style="list-style-type: none"> 1. Revised D.1. elevation 808 to read elevation 801. 2. Added D.5. relating to skidding of logs and coordination of clearing work. 3. Updated titles of TVA divisions. 	1/21/76

TVA 10834 (DED-9-73)

**CONSTRUCTION SPECIFICATION FOR RESERVOIR CLEARING AND
DRAINAGE - TELlico RESERVOIR**

TC-858

This specification has been coordinated with the Divisions of Environmental Planning; Water Management; Forestry, Fisheries, and Wildlife Development; Property and Services; and Navigation Development and Regional Studies.

R1

A. Clearing

1. Clearing shall consist of the removal of and disposal of trees, brush, bushes, heavy weed growth, or similar material, and the removal of wooden structures, foundations, chimneys, silos, fences, mill and recreational dams, abandoned bridge piers, and other obstructions to commercial navigation and recreational navigation.
2. Clearing shall be accomplished in the areas and in the manner prescribed in this specification.

B. Areas to be Cleared

1. The total area to be cleared includes that portion of Tellico Reservoir, its branches, bights, and indentations, and the tributary streams which shall be divided into the following areas and zones:
 - a. Area 1--That portion of the reservoir which lies on the Little Tennessee River and that portion of the reservoir which lies between the mouth and mile 5 of the Tellico River, including Notchy Creek upstream to the old Steed Bridge site. Area 1 shall be divided into the following zones:
 - (1) Zone 1--That area of the reservoir which lies below the 794 contour (11 feet below minimum headwater).
 - (2) Zone 2--That area of the reservoir and the tributary streams which lies between the 794 contour and the normal maximum headwater, elevation 813, plus that area which extends from the 813 contour for a landward distance of 15 feet, measured along the slope of the ground, or to the 815 contour whichever is reached first.
 - b. Area 2--That portion of the reservoir which lies above mile five of the Tellico River and above the old Steed Bridge site on Notchy Creek. Area 2 shall be divided into the following zones:
 - (1) Zone 1--That area of the reservoir which lies below the 800 contour (5 feet below minimum headwater).
 - (2) Zone 2--That area of the reservoir and the tributary streams which lies between the 800 contour and the normal maximum headwater, elevation 813, plus that area which extends from the 813 contour for a landward distance of 15 feet, measured along the slope of the ground, or to the 815 contour whichever is reached first.

R1

R1

TVA

CONSTRUCTION SPECIFICATION FOR RESERVOIR CLEARING AND
DRAINAGE - TELlico RESERVOIR

TC-858

The intent of this specification is to clear area 1 for commercial navigation and area 2 for recreational boating.

A summary of various water elevations is given below:

Tellico Reservoir

Minimum headwater elevation	- 805
Normal maximum headwater elevation	- 813
Approximate 10-year flood elevation	- 814.8±
Maximum probable headwater elevation	- 817.5±

C. Clearing Instructions

1. All trees, brush, heavy weed growth, or similar material and wooden structures, foundations, chimneys, silos, fences, mill and recreational dams, abandoned bridge piers, and other obstructions are to be removed in the following manner except as modified by D.
 - a. Trees—In zone 1, those trees whose tops extend above elevation 794 in area 1 and elevation 800 in area 2 shall be removed. Such trees shall be cleared in the most efficient manner, except that no stump shall extend above elevation 794 in area 1 and elevation 800 in area 2. In addition, all trees which are dead, unsound, or which are for any other reason likely to float up at a later date shall be removed. All other trees in zone 1 may remain in place. In zone 2, all trees shall be cut flush with the ground, if possible, and in no case shall the stump extend more than 4 inches above ground level. The intent of this specification is to clear zone 2 in a manner which will remove hazards to recreation and permit future moving with a machine. R1
 - b. Brush, Bushes, Heavy Weed Growth, and Briars—In zone 1, only those stands of brush, bushes, heavy weed growth, and briars whose tops extend above elevation 794 in area 1 and elevation 800 in area 2 shall be removed. In addition, all similar growth in zone 1 which is dead, loose, or otherwise likely to float up at a later date shall be removed. All other brush, bushes, heavy weed growth, and briars in zone 1 may remain in place. In zone 2, all brush, bushes, heavy weed growth, and briars shall be machine cut. In areas where machine cutting is impracticable, cutting shall be flush with the ground (as close as possible) by hand. R1
 - c. Wooden Structures—All wooden structures in zones 1 and 2 shall be completely removed to ground level.
 - d. Foundations—Foundations in zone 1 having top elevations of 794 or less in area 1 or 800 or less in area 2 may be left in place. Those foundations whose top elevations exceed 794 in area 1 or 800 in area 2 shall be reduced to those elevations or to the elevation of surrounding ground, whichever is higher. In zone 2, all foundations shall be removed flush with the surrounding ground (as low as possible). R1

CONSTRUCTION SPECIFICATION FOR RESERVOIR CLEARING AND
DRAINAGE - TELlico RESERVOIR

TC-858

- e. Chimneys and Fences--In zone 1 all fences shall be removed and all chimneys shall be felled. Debris from felled chimneys may be left in place if it does not extend above elevation 794. All fences in zone 1 shall be removed as close to ground level as practicable, consistent with efficient operations. In zone 2, all chimneys and fences shall be removed flush with the surrounding ground (as low as possible). R1
- f. Mill and Recreational Dams, Silos, and Bridge Piers--All mill and recreational dams, silos, and bridge piers whose top elevations are below 794 in area 1 or 800 in area 2 may remain in place. Mill and recreational dams, silos, and bridge piers whose top elevations extend above elevation 794 in area 1 or elevation 800 in area 2 shall be reduced to those elevations or to the elevation of the surrounding ground whichever is higher. Bridge piers shall be removed if so specified on bridge plans. R1
- g. Nonsalvable Material--All nonsalvable timber, logs, brush, tops, and other material which might float or collect floatage following impoundment in both zones 1 and 2 shall be piled and burned or otherwise disposed of in a satisfactory manner. Piling and burning operations shall be performed below elevation 813 and at such a time as to prevent damage to standing timber adjacent to the reservoir basin, and in accordance with applicable local regulations. Any exception to burning below elevation 813 must have prior approval of DED. R1
- h. Wells and Cisterns--All wells and cisterns in zones 1 and 2 with tops above elevation 799 and all wells and cisterns on lands acquired above zone 2 shall be reduced to the elevation of the surrounding ground and filled to eliminate hazards to the public. A representative of Mapping Services Branch shall identify the wells and cisterns above elevation 813 on lands acquired. R1

D. Special Instructions and Exceptions to Clearing

1. In the interest of providing optimum sport fishing conditions, selected areas of growth and stumpage may be left in place. Such areas shall be coordinated with interested divisions and specifically identified by a representative of the Fisheries and Waterfowl Resources Branch. In no case shall the tops of growth and stumpage be higher than elevation 801. R1
2. In areas designated for shoreline improvement by deepening and filling, trees and stumps should be removed together, or stumps should be left high enough to permit most economical removal by bulldozer.
3. Reasonable care shall be taken to minimize construction operations above elevation 813. Insofar as practicable, scarring of riverbanks shall be eliminated, reducing the possibility of siltations.

TVA

CONSTRUCTION SPECIFICATION FOR RESERVOIR CLEARING AND
DRAINAGE - TELlico RESERVOIR

TC-858

4. Four safety landings requiring special treatment have been identified by the Division of Navigation Development and Regional Studies and are located on the attached map. Clearing of these areas will be inspected by a representative of the Division of Navigation Development and Regional Studies.
5. Logs shall be skidded in such a manner that will minimize siltation and turbidity. (TVA's snail darter conservation effort requires that siltation and turbidity be held to a minimum.) The clearing supervisor shall work closely with FFWD in order that logs and brush may be used by FFWD crews to construct fish attractors.

R1

E. Marginal Drainage

1. All marshy areas and all depressions lying between the approximate 10-year flood elevation and elevation 810, which would be filled at the approximate 10-year flood and hold water forming isolated pools when the lake is lowered, shall be inspected by the Division of Environmental Planning to determine whether or not the area is to be connected with the main body of the reservoir by construction of drainage ditches. If the location and size of the drainage ditches involve significant cost or construction difficulties, the Division of Environmental Planning and the Office of Engineering Design and Construction shall jointly determine the feasibility of draining these areas.

F. Interim Inspection

1. An interim inspection will be made during the course of clearing operations. OEDC will request the Divisions of Environmental Planning; Navigation Development and Regional Studies; Property and Services; Water Management; and Forestry, Fisheries, and Wildlife Development to participate in the inspection to determine the effectiveness of clearing operations underway and to recommend corrective measures, if necessary.

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G. Final Reconditioning

1. The need for reconditioning the cleared areas prior to impoundment will depend upon regrowth of woody plants during the time lapse between initial clearing and filling of the reservoir and shall be determined by field inspection. The specific areas, if any, requiring rebrushing operations shall be defined by the engineering representative of the Division of Environmental Planning. Areas so defined shall be cleared as set forth in C of this specification.
2. Upon completion of clearing, corrective measures, where necessary, such as construction of check dams, terraces, grassing, and diversion ditches, shall be taken to prevent erosion at clearing roads and skid trails above zone 2.



CONSTRUCTION SPECIFICATION FOR RESERVOIR CLEARING AND
DRAINAGE - TELlico RESERVOIR

TC-858

3. After completion of construction there shall be a joint inspection by the Divisions of Construction; Engineering Design; Environmental Planning; Navigation Development and Regional Studies; Water Management; Property and Services; and Forestry, Fisheries, and Wildlife Development for approval of work. | RI

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December 1, 1975

Dr. James D. Williams
U. S. Department of the Interior
Fish and Wildlife Service
Office of Endangered Species
Washington, D. C. 20240

Dear Jim:

This is in response to our telephone conversation of November 24, 1975, regarding the Tellico Basin clearing.

As you may recall, there will be approximately 2,000 acres cleared by the time we have completed the operation. This amounts to 0.5 percent of the total 406,400-acre watershed below Chilhowee Dam to Little Tennessee River Mile 5, much of which, as you observed from the helicopter during your March 24, 1975, visit is agricultural land. This land has been subjected to extensive clearing, plowing, and cultivating for many years and has produced a correspondingly heavy silt load in the watercourses.

Sedimentation experts with the Tennessee Valley Authority's Division of Water Management have examined past records of sediment transported by the Little Tennessee River and have estimated the soil loss which could be produced by reservoir clearing. Prior to construction of any dams on the Little Tennessee River, average sediment loads were probably around 800,000 tons per year. Early Tennessee Valley Authority sediment measurements show that average annual sediment loads in the late 1930's averaged around 340,000 tons. Since the Fontana and Chilhowee impoundments, the average load declined to approximately 254,000 tons per year. Sediment production which could be attributable to the Tellico Reservoir clearing is estimated to be less than 1 percent of the sediment load.

We have also studied the clearing operations for possible effect on the darter and have concluded that there will be no significant impact on the darters or their normal life history functions resulting from the basin clearing. We have reviewed the basin clearing specifications by foresters and feel they are environmentally sound. Out of an abundance of caution,

- 2 -

Dr. James D. Williams

December 1, 1975

two changes in the clearing plans have been made to even further reduce any potential soil loss. One was with respect to additional precautions regarding log skidding, and the other change was to lower the clearing elevation by two feet.

The cleared area adjacent to Coytæ Spring has been fertilized and planted with grasses and is now covered with a healthy growth. As I mentioned in our phone conversation, I have assigned a staff forester, having a watershed management background, to work with the clearing supervisors making onsite inspections and suggesting modifications in procedure when necessary.

Sincerely,

Thomas H. Ripley, Director
Division of Forestry, Fisheries,
and Wildlife Development

CC: Mr. Kenneth Black
Regional Director
Bureau of Sport Fisheries and Wildlife
U.S. Fish and Wildlife Service
17 Executive Park Drive, NE.
Atlanta, Georgia 30329

DECEMBER 17 1975

TVA 66 (OS-9-68)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : G. H. Kimmons, Manager of Engineering Design and Construction, 607 UB,
Knoxville

FROM : Thomas H. Ripley, Director of Forestry, Fisheries, and Wildlife Development,
Norris

DATE : December 15, 1975

SUBJECT: TELlico PROJECT - COORDINATION OF RESERVOIR CLEARING ACTIVITIES

This confirms our discussions and understanding concerning the coordination of Tellico project construction activities and the snail darter conservation program.

We agree that TVA's clearing specifications for the Tellico project, Construction Specification No. TC-858, as strengthened by the October 1, 1975, additions to Item D, Special Instructions and Exceptions to Clearing, are fully adequate to control the siltation potential from clearing and to prevent any detrimental effect to the snail darter. Out of an abundance of caution, however, we had suggested certain additional measures which could perhaps be taken to further assure that our conservation objectives will be attained. As we have since discussed, it is unfortunate that my roughly drafted guides or criteria were assumed to be recommendations for an across-the-board technical amendment of the construction specifications. They were intended only as a rough sketch of our thoughts and as a basis for discussion, and not as final or definitive criteria for the overall clearing operation. The agreed upon revised procedures now make this clear. A representative of this Division is in the field working with your people in the implementation of these additional precautions.

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The following supplemental precautions will be observed in clearing designated sensitive areas:

1. Living vegetation will not be cut unless leaving it will produce a problem when the reservoir is filled.
2. Stumps will not be grubbed and/or land cleared to mineral soil except when necessary for access or some other specific purpose.
3. Sites disturbed to mineral soil will be fertilized and seeded as quickly as possible. Fertilizers and mixtures of grasses and other materials will conform to season and site needs.
4. To the extent feasible, heavy equipment will be kept out of streambeds, and off hillsides and riverbanks.



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

2

G. H. Kimmons
December 15, 1975

TELLICO PROJECT - COORDINATION OF RESERVOIR CLEARING ACTIVITIES

5. Where removal is needed, streamside and steep hillside vegetation (timber) will be skidded by cable or removed by other appropriate method.

THR:JSB

CC: M. I. Foster, 511 AB-K
J. P. Taylor, 109 WCB-K

12-17-75--cb

CC: R. H. Dunham, 505 UB
H. H. Mull, 707 UB



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May 13, 1976

Mr. Phillip S. Morgan
Acting Regional Director
Fish and Wildlife Service
United States Department of the Interior
17 Executive Park Drive, N.E.
Atlanta, Georgia 30329

Dear Mr. Morgan:

This is in reply to your letter of April 27, 1976, concerning consultation between TVA and the Department of the Interior under the Endangered Species Act, as it pertains to the Tellico Dam project and its potential effects on the snail darter.

As you no doubt are aware, TVA in carrying out the project has done everything humanly possible to conserve the snail darter. These conservation efforts began shortly after the discovery of the snail darter and well over a year before its listing as endangered. Consultation with the Department of the Interior began in late 1974. On occasions too numerous to catalog in a letter, we have forwarded to various offices of the Fish and Wildlife Service involved materials and information about our snail darter conservation program, and sought their comments and assistance. This includes our letters of August 15 and 20, 1975, forwarding complete details of our conservation program, and our letter of January 22, 1976, responding in full to Mr. Greenwalt's October 29, 1975, letter in which he listed the information needed by the Service for its consultation under section 7. TVA's reply to that request contained several hundred pages of data.

In light of all this, we believe the purposes of the interagency consultation stated in the new guidelines are being fulfilled. As stated on page 2 of the guidelines:

The consultation and assistance process proposed here is viewed as a means of providing responsible Federal agencies with the benefit of information, biological opinions, and expertise available in the FWS and the NMFS on the effects of actions upon listed species and their habitats.



- 2 -

Mr. Phillip S. Morgan

May 13, 1976

We feel that in completing the project TVA has explored all possible options to prevent extinction of the snail darter and are confident that our efforts will be successful. Given the situation that exists with respect to this project, which is 80 percent complete and which involves a public investment of \$80 million, there seems to us to be no other realistic and feasible option than to complete the project as scheduled, and we have so informed Congress and OMB. This project is not one which allows for alteration in detail or design which could prevent alteration or modification of the presently listed critical habitat of the snail darter, which was discovered after the project was over 50 percent complete and listed as endangered after the project was 75 percent complete. Unlike a highway or other flexible project, the dam cannot be moved; nor can the reservoir level be altered. The basic design of the project is to make Tellico Reservoir an integral part of Fort Loudoun Reservoir and it must necessarily have the same water level. The only real choices available are to complete or abandon the project, and Congress, with all the relevant information before it, has directed TVA to complete the project. We know of no valid reason to alter that view, and we certainly do not construe the Endangered Species Act to require the outright abandonment of a project in such an advanced stage of completion.

Although we feel that we have fully and exhaustively explored and consulted with the Department of the Interior with regard to all options available to complete the project and save the darter, we shall be happy to consult further if you have any additional suggestions or plans which will allow completion of the project in accordance with our congressional mandate and conserve the snail darter.

Sincerely yours,

Lynn Seebor
General Manager

CC: Mr. Nathaniel P. Reed
Assistant Secretary
Fish and Wildlife and Parks
United States Department of the Interior
Washington, D.C. 20240

Mr. Keith Schreiner
Associate Director, Federal Assistance
Fish and Wildlife Service
United States Department of the Interior
Washington, D.C. 20240

July 15, 1976

Mr. Kenneth E. Black
Regional Director
Fish and Wildlife Service
17 Executive Park Drive, N.E.
Atlanta, Georgia 30329

Dear Mr. Black:

This is in reply to your letter of May 27, 1976, regarding the Tellico project.

As we stated in our May 13 letter to Phillip S. Morgan of your office, although we feel that TVA has fully and exhaustively explored and consulted with the Department of the Interior on all options available to complete the project and conserve the snail darter, we shall be glad to consult further if you have any additional suggestions or plans to conserve the darter which will also allow completion of the project in accordance with our congressional mandate. The alternatives which you suggested in your letter of May 27 do not allow completion of the project.

We believe that our position is fully consistent with the requirements of the Endangered Species Act. As you know, the United States District Court for the Eastern District of Tennessee, Northern Division, in the case of Hill v. Tennessee Valley Authority, Civil No. 3-76-48 (filed Feb. 18, 1976), held that the Endangered Species Act did not prevent completion of the Tellico project. In so doing, the court found that TVA had fulfilled the consultation requirements under the act and had made a good-faith effort to conserve the snail darter. Additionally, the court said:

Completion of the dam and impoundment of the river are integral parts of a project begun almost a decade ago. TVA has been moving toward this goal since ground was first broken. When the snail darter was listed on the endangered species list in November 1975, TVA was fairly close to completion of the project which has been consistently funded by Congress since 1966.

- 2 -

Mr. Kenneth E. Black

July 15, 1976

The nature of the project is such that there are no alternatives to impoundment of the reservoir, short of scrapping the entire project. Modifications or alterations to the project cannot be made at this time which will insure compliance with the Endangered Species Act. Requiring TVA to consult with other agencies about alternatives not reasonably available to it would be to require TVA to perform a useless gesture [Memorandum Decision at 11].

We are enclosing a copy of the court's opinion for your information.

If you feel that additional matters about the completion of the project and the conservation of the snail darter need to be discussed between TVA and the Fish and Wildlife Service, we shall be happy to consult on those matters at a mutually convenient time. Dr. Thomas H. Ripley, Director of TVA's Division of Forestry, Fisheries, and Wildlife Development, and TVA's liaison officer for endangered species matters, FTS telephone number 852-3333, will be glad to discuss with you arrangements to do so.

Sincerely yours,

Lynn Seaber
General Manager

EXHIBIT B

**TELlico DAM AND RESERVOIR CUMULATIVE CONSTRUCTION COSTS
BY YEARS IN THOUSANDS OF DOLLARS
(WITH APPROPRIATIONS)**

	ACTUAL												ESTIMATED		
	6/30 1967	6/30 1968	6/30 1969	6/30 1970	6/30 1971	6/30 1972	6/30 1973	6/30 1974	6/30 1975	6/30 1976	6/30 1977	6/30 1978	6/30 1979	9/30 1979	TOTAL COST
CUMULATIVE TO:															
Land Acquisition															
Reservoir Adjustments, Clearing and Rim Treatment	707	4,809	6,643	10,066	12,450	15,423	16,931	19,109	21,910	25,262	25,623	25,700	25,700	25,700	25,700
Main Dam, Spillway, and Auxiliary Dams	178	-	571	2,423	5,241	7,823	8,572	10,094	17,209	30,681	38,304	42,404	42,500	42,500	42,500
Interreservoir Canal, Channel Improvements, Public-Use Facilities, and Other Structures	228	2,753	3,947	3,983	3,984	4,032	4,030	5,630	9,851	21,302	22,699	23,300	23,300	23,300	23,300
Construction Plant, Equipment and Inventories	109	109	109	109	109	109	109	128	300	2,533	5,008	10,708	12,100	12,100	12,100
Construction Supervision, General Engineering, and Administration	576	1,588	1,449	1,736	1,463	637	809	265	191	99	302	-	-	-	-
	982	2,221	2,870	3,362	3,814	4,481	4,957	5,830	7,680	11,859	13,710	15,042	15,400	15,400	15,400
TOTAL EXPENDITURES	2,780	11,480	15,589	21,679	27,061	32,505	35,408*	41,056	57,141	91,736	105,646	117,154	119,000	119,000	119,000
TOTAL APPROPRIATIONS	4,093	10,340	17,978	22,400	27,297	35,297	46,547	46,547	63,447	92,589	102,289	113,789	113,635**		

* Major construction was halted by a 21-month injunction, extending from January 1972 to November 1973, during the litigation challenging the need for and adequacy of TVA's environmental impact statement, which was ultimately resolved in TVA's favor by the courts.

** The difference in total appropriations (\$113,635,000) and the total project cost (\$119,000,000) is \$5,365,000. This difference has been funded from unobligated balances, efficiencies, and ellipses in financing other TVA programs during the construction of the Tellico project.

THE FRANK H. McCLUNG MUSEUM

THE UNIVERSITY OF TENNESSEE, KNOXVILLE 37916

July 20, 1977

The Honorable John C. Culver
Chairman, Subcommittee on
Resource Protection
The United States Senate
Washington, D.C. 20510

Dear Senator Culver:

It has come to my attention that Dr. Jefferson Chapman, a Research Assistant Professor in the Department of Anthropology of The University of Tennessee, Knoxville, intends to appear before your Subcommittee in opposition to completion of TVA's Tellico Dam and Reservoir Project, which has been substantially completed on the lower 33 miles of the Little Tennessee River. Since the inception of the project in 1967, I have served as Principal Investigator of a very extensive archaeological survey and research program which has been carried on in the project area, and Dr. Chapman has participated in some phases of the program along with a number of other archaeologists working under my direction. I am Director of the McClung Museum at the University and am a Professor of Anthropology in that department which I formerly headed. The appearance of Dr. Chapman is not sanctioned by the McClung Museum or by me as Principal Investigator of the Tellico Archaeological Project. He is appearing simply as a concerned citizen, and the views he expresses may not coincide with my own.

Because of the Tellico project, TVA has provided the University with research funds in the approximate amount of \$960,000, and the National Park Service has added an additional \$497,000. This has made it possible to plan and carry out an orderly and very extensive program of archaeological survey and investigation of the significant resources in the project area. As a result, a great volume of archaeological and historical information as well as artifactual material has been recovered and new insight has been gained into the prehistoric and historic Indian occupation of the area. This has been particularly true regarding the history of the Overhill Cherokees, a number of whose towns were once located in this section of the Little Tennessee River Valley, although other Overhill Cherokee towns existed beyond the limits of the project area, and some of these sites remain for future investigation.

Of principal significance in evaluating the results of this program is the fact that much of the information and material which has been recovered was unavailable when the land was in private ownership. It was being lost and destroyed by erosion, cultivation, theft, natural deterioration, and improper handling by unscientifically trained persons. If the project



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The Honorable John C. Culver

July 20, 1977

should not be completed and the land should be returned to private ownership, it is believed that this process of loss and destruction would be resumed, doubtless on an accelerated basis since our work has pinpointed the location of sites which formerly were known only in a general way./ Indeed, "pot hunters" and looters have been a problem during the actual conduct of our work. The Citico site is a case in point, and I mention it since it alone among the principal sites might be adversely affected by reservoir fluctuation if impoundment occurs. Following the completion of our work performed during the years of 1967 and 1968 and before possession of the property was obtained by TVA, the site was extensively looted by amateur relic hunters. This has continued to some degree after TVA obtained possession of the property despite efforts of its public safety officers to drive the looters from the site. This extensive damage to the site, when coupled with the fact that we have obtained an adequate sampling of the material and information which it contained, greatly lessens the concern which I might otherwise have over the possible effects of the proposed reservoir.

There are a significant number of people in the field of archaeology who regard inundation by a reservoir as preferable to continued destruction of sites by looting and natural forces. Although the effects of inundation are not fully known and an area has been provided to test these effects in the Tellico project, it is well established that certain materials essential to archaeological research such as carbonized matter, stone, flint, and soil stains survive after thousands of years following inundation by water. The Early Archaic and Early Woodland sites investigated by Dr. Chapman are examples. There such materials were discovered under 10 to 15 feet of alluvial deposit, laid down by repeated flooding over a time span of 9,500 years. In short, inundation is not inevitably destruction, and may be considered preferable to the damage and destruction of sites which occurs from looting, cultivation, and erosion./ This is particularly true of the later cultural occupations such as the Dallas phase of the Mississippian period and the still later occupation by the Cherokees. These occupations are not deeply buried and are evident on the surface.

It is generally accepted that the recovery of a 10 percent sampling of material from a given site is sufficient for a scientific interpretation of the occupation or occupations which once existed there. Fully adequate samples of 10 percent or more have been recovered from such major sites as Citico, Chota, Toqua, Tomotley, etc. One hundred percent site excavation is unnecessary from a scientific viewpoint, and cannot be justified from the standpoint of policy where public funds are being expended./

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The Honorable John C. Culver

July 20, 1977

The archaeological research program in Tellico has been adequately funded. Indeed, the guidelines contained in the Moss-Bennett Bill have been substantially exceeded, and I know of no other river basin project in the United States which has received so extensive--or expensive--an investigation. Funding provided because of the project has enabled us to make significant discoveries and the recovery of information and artifacts has provided us with an adequate insight into the aboriginal occupation of the project area. Although additional research could be performed, the completion of the project and the filling of the reservoir would not deprive the scientific community or the public in general of the opportunity of gaining an adequate understanding of that occupation. The means for that understanding have already been achieved.

Sincerely,

Dr. A. K. Guthe
Principal Investigator
Tellico Archaeological Project

Director, McClung Museum
and Professor of Anthropology
The University of Tennessee
Knoxville, Tennessee

November 14, 1977

The Honorable Malcolm Wallop
The United States Senate
Washington, D.C. 20510

Dear Senator Wallop:

This is in response to your October 13 and October 22 letters in which you requested a summary of TVA's land acquisition policies and procedures, and particularly those used in the Tellico Dam and Reservoir acquisitions. You enclosed a copy of a letter with attachments from Thomas Moser and asked for specific information on the condemnation of his property.

We appreciate this opportunity to explain our land acquisition practices in general, and to point out the reasons why lands were acquired for the Tellico project which will not actually be inundated by the waters of the reservoir.

In creating the Tennessee Valley Authority in 1933, Congress granted TVA's Board of Directors the power to acquire in the name of the United States all property which the Board deemed necessary to carry out the purposes of the Act. The broad purposes of the TVA Act, as they related to land acquisition, were well summarized by the Supreme Court in a case which arose as a result of TVA's acquisition of some 44,000 acres of land located between our Fontana Dam project and the Great Smoky Mountains National Park. Of course, any project of necessity involves acquiring more land than that devoted to the principal project purpose and the 44,000 acres, like some of that acquired for the Tellico project, was not to be flooded by the reservoir, but was to be used for other purposes consistent with TVA's statutory responsibilities. In so considering the acquisition, the Supreme Court said:

[The TVA] Act does far more than authorize the T.V.A. to build isolated dams. The broad responsibilities placed on the Authority relate to navigability, flood control, reforestation, marginal lands, and agricultural and industrial development

EXHIBIT 10

The Honorable Malcolm Wallop

November 14, 1977

of the whole Tennessee Valley. . . . All of the Authority's actions in these respects were to be directed towards "development of the natural resources of the Tennessee River drainage basin and of such adjoining territory as may be related to or materially affected by the development consequent to this Act . . . all for the general purpose of fostering an orderly and proper physical, economic and social development of said areas." To discharge its responsibilities the T.V.A. was granted "such powers as may be necessary or appropriate" for their exercise. . . . Section 4(1) of the Act empowers the Authority to condemn specified types of property and concludes by referring to "all property that it [the Authority] deems necessary for carrying out the purposes of this Act." To make clear beyond any doubt the T.V.A.'s broad power, Congress in § 25 . . . authorized the Authority to file proceedings, such as the ones before us, "for the acquisition by condemnation of any lands, easements, or rights of way which in the opinion of the corporation are necessary to carry out the provisions of this Act" [United States ex rel. TVA v. Welch, 327 U.S. 546, 553-54 (1946)].

It is this charter which guides our decisions concerning the land needed to maximize the public benefits from a TVA project. Thus, in connection with multipurpose water resource projects like Tellico, which are designed to foster the physical, economic, and social development of the areas affected, TVA acquires more land than will be inundated, but only that land necessary to accomplish the overall goals of the project.

The acquisition of lands in addition to those to be inundated in order that project objectives might be realized received an early review by the Congress through a Joint Committee which conducted an extensive investigation of TVA in 1939. In reviewing TVA's first two reservoir projects, Norris and Wheeler, in which the amount of land acquired was approximately double the acreage to be flooded, the Committee recognized the beneficial use of some of the lands acquired for the construction of parks, noting that

The Honorable Malcolm Wallop

November 14, 1977

recreation in the Valley was an important potential source of health and income. Big Ridge Park on Morris Lake was described as providing "a 45-acre lake, with 4,500 acres of game refuge, and swimming and boating facilities" (Report of the Joint Comm. Investigating the Tennessee Valley Authority, S. Doc. No. 56, 75th Cong., 1st Sess., pt. 1, at 253 (1939)).

The Tellico project, in addition to providing flood control and electric power benefits, will create a 9-foot-deep navigation channel providing opportunities for commercial and industrial development in an area now characterized by low incomes and the outmigration of young people. Based upon development in other TVA reservoirs, we estimate that 4,000 basic industrial jobs and 2,600 trades and service jobs will be created over a 25-year development period. Other benefits will accrue from water supply availability, fish and wildlife development, and shoreline and recreation development. Accordingly, when the Tellico project was planned, our Board decided that approximately 33,000 acres should be acquired, about half of which would be inundated by the reservoir at full pool, with the balance to be used for shoreline protection, recreation development, and industrial and residential use. The acquisition of this land was necessary to achieve maximum public benefit from the project.

The scope and purposes of the Tellico project, as well as the land acquisition policies employed, have been discussed at length in Congress. During the 1966 hearings before the House Appropriations Committee, TVA furnished a detailed statement setting forth all relevant facts, including plans for resale and development of portions of land to be acquired as a means of realizing the full benefits afforded by the project. The statement contained the following summary with regard to land acquisition resale and development:

SHORELINE LANDS

TVA believes the Tellico project will contribute greatly to the industrial development of the area and proposes to follow a land acquisition pattern which will assure that sites needed for industry are reserved for that purpose. The amount of land acquired by TVA for the project is expected to be about twice the area inundated, as has been the case in most other reservoirs. However,

The Honorable Malcolm Wallop

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advance planning will assure a more effective use of the shoreline lands than in the past. Plans for the use of these lands will be developed in full cooperation with State and local officials to insure that sites best suited for industry are not dissipated for less vital purposes and that there are adequate provisions for public and private recreation, homesites, and other purposes.

The plan to acquire key lands for industrial and recreation development and resell them as demand for such property increases reflects the public purpose of the project in meeting the serious need for measures to speed growth in employment and general economic development in this part of eastern Tennessee.

Proceeds from the sale of lakeshore lands, presently estimated at \$10,900,000, would be returned to the U.S. Treasury as an offset against the cost of the project [Hearings on Pub. Works Appropriations for 1967 Before a Subcomm. of the House Comm. on Appropriations, 89th Cong., 2d Sess., pt. 2, 761-66 at 765 (1966)].

Acquisition of land for Tellico began in 1967 and was completed in 1976. Procedures in acquiring land were governed by a policy statement set by our Board, a copy of which is enclosed. The basic policies which we have followed were developed initially in the 1930's and were last revised in 1971 to reflect conformity with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Under our policy, TVA land appraisers are instructed to appraise land and land rights in such a way as to encourage voluntary conveyances. We believe that we have had an outstandingly successful record in property acquisition, and the Tellico project is no exception. All or part of 750 tracts in the Tellico project were acquired from landowners in fee simple. Of these, 692, or 92 percent, were acquired by negotiation and voluntary conveyance. It was necessary to condemn only 53 tracts, or 8 percent. Of those, 26 were necessary only because of the condition of title and not because of a dispute

The Honorable Malcolm Wallop

November 14, 1977

as to price. Only 32, or about 4 percent of all tracts, were condemned because of a disagreement as to the value of the property. In the trial of those 32 cases, the court awarded less than TVA had offered in 6 cases and more in 26 cases. However, the average increase in the latter group of cases was only 7 percent. We believe that the high percentage of voluntary conveyances and the trial results clearly demonstrate that TVA dealt fairly with the landowners affected by this project.

As to the property acquired from Mr. Moser, which was mentioned in your letter and enclosures, the facts are as follows: the Moser tract contained a dwelling house located on 4.7 acres of land at the north edge of the village of Vonore in Monroe County. Upon impoundment of the lake, the front portion of the house will be inundated, as will the public road which serves it. Utility service lines will also be inundated. There will be no road access to the small remainder of the tract which will become a part of the shoreline of the lake.

TVA first sought to purchase the Moser property in 1969, and after negotiations extending over a period of two years proved unsuccessful, condemnation proceedings were instituted in Federal court in Knoxville in 1971. Under applicable law, title to the property passed to the United States at that time, but since immediate possession was not needed, Mr. Moser was permitted to continue in occupancy.

A TVA appraiser had placed a value of \$12,550 on the property, and that amount was deposited with the court as our estimate of just compensation. Mr. Moser was the sole landowner plaintiff in a suit brought by the Environmental Defense Fund and others in an attempt to halt the project. At the request of Mr. Moser and his attorney, trial of the condemnation case was deferred pending the outcome of the environmental litigation. After the environmental case was decided in TVA's favor in 1973, the condemnation case was tried before a commission appointed by the court. The realtor who appeared as a witness on Mr. Moser's behalf testified to a value of \$16,500. After hearing the testimony offered by both parties and after personally inspecting the property, the commission awarded \$14,500, and Mr. Moser filed no appeal to the award. With interest on the difference between the award and the amount deposited, the sum of \$14,718.08 was sent to Mr. Moser by the clerk of the court in June 1973. Mr. Moser did not see fit to use this money to purchase replacement property, but instead returned it to the court where it still remains. Of course, it is subject to withdrawal by Mr. Moser at any time.

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The Honorable Malcolm Wallop

November 14, 1977

After the full amount due Mr. Moser had been determined by the court, TVA's relocation assistance people got in touch with him in July 1973 to offer our aid in finding replacement property and to explain the relocation assistance to which he was entitled. He was informed in writing that TVA would pay up to \$2,000 in addition to the court judgment if he spent that much to purchase existing housing comparable in age, size, etc., to his former home. He was further informed that if comparable housing could not be located, TVA would pay up to \$7,000 above the amount of the judgment which could be applied to the purchase of a new dwelling costing up to \$21,500. He was also given the option of purchasing for a small sum the salvage rights to the dwelling house which we had condemned and which could be moved to another site. Our relocation people found a site in the immediate neighborhood which could have been purchased and to which the house could have been moved. However, Mr. Moser resisted all efforts to relocate and still occupies the house and property which have been owned by the United States since 1971. We remain ready, of course, to assist Mr. Moser in finding other replacement property. Three hundred thirty-eight families have moved from the project area. Only Mr. Moser and two others, one of whom appeared before the Senate Subcommittee on Resource Protection in opposition to Tellico, have refused to vacate the properties which they formerly owned.

One final point concerning the material Mr. Moser sent to you should be mentioned. The Tellico Dam is not built on an earthquake fault. While it is true that a fault does exist within a mile of the site where Tellico Dam has been completed, it does not pose a hazard to the project. As shown by the enclosed excerpts from the environmental impact statement, historically neither this fault nor any other fault in the Tennessee Valley has been active. The accepted methods for making such determinations show that the last movement of the fault was at least 280-290 million years ago.

We appreciate your giving us an opportunity to explain these aspects of the Tellico project, and if there is any other material or information which would be helpful to you, please let us know.

Sincerely yours,

Aubrey J. Wagner
Chairman

Enclosures



DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT
ANDREW JACKSON STATE OFFICE BUILDING - NASHVILLE, TENNESSEE 37210

March 16, 1977

The Honorable William C. Watson
Legislative Plaza
Suite 22
Nashville, TN 37219

Dear Representative Watson:

This is in response to your recent query regarding the proposed industrial park and port facility on the Little Tennessee River in Monroe County Tennessee.

As the industrial and economic development agency of Tennessee State Government, we consider this proposed park and port facility to have one of the highest potentials in the state in terms of future industrial development. The present proposal is for a site of 300 acres and eventually public port facilities. However, TVA owns approximately 5,000 acres of choice industrial land in this area and most of this is available when needed for industrial purposes. This means that when we have major industrial projects requiring substantial acreages of land, we can offer them up to 5,000 acres of land with excellent water, highway and rail facilities.

The Monroe County Quarterly Court has made a commitment to acquire the first 300 acres from TVA and has applied to us for ARC funds for development purposes. Governor Blanton has approved an initial grant for \$500,000 and has recommended it to ARC for approval. Preliminary approval is expected by ARC on March 21, 1977.*

Obviously, we and the Monroe County Quarterly Court are concerned about the uncertainty which the stoppage of the Tellico Dam construction creates for this high priority industrial site development project and hope that the decision on the completion of the dam can be made with minimum delay.

Sincerely,

Thomas D. Benson

Thomas D. Benson, Commissioner
Department of Economic and
Community Development

TDB/lis *These funds were approved on Monday, March 21, 1977



TELLICO PROJECT
ECONOMIC ANALYSIS¹

Annual Costs

Interest and amortization	\$2,045,000
Operation and maintenance, including replacements	<u>205,000</u>
Total Annual Costs	\$2,250,000

Direct Annual Benefits

Flood control	\$ 505,000
Navigation	400,000
Power	400,000
Recreation	1,440,000
Fish and wildlife	220,000
Water supply	70,000
Shoreline development	710,000
Redevelopment	<u>15,000</u>
Total Direct Annual Benefits	\$3,760,000

Benefit-Cost Ratio for Direct Benefits **1.7:1**

Secondary Annual Benefits

Enhanced employment	<u>\$3,650,000</u>
Total Annual Benefits	\$7,410,000
Benefit-Cost Ratio, Including Secondary Benefits	3:1

1. Based upon a service life of 100 years, discount rates of 4 percent for power and 3-1/4 percent for other purposes per requirements of Water Resources Council standard 704.39(d), and 1968 price levels for both benefits and costs (capital amount \$54,000,000).

PFBr
9/22/71

EXHIBIT 12

FLOOD CONTROL

The greatest actual and potential urban damage from floods in the Tennessee Valley has been in Chattanooga. Major tributary reservoirs control 63 percent of the drainage area above Chattanooga, providing flood storage on January 1 equivalent to 8.4 inches over their watersheds. The remaining 37 percent of the drainage above Chattanooga has relatively little control by three main river reservoirs, which provide flood storage equivalent to an average of only 1.9 inches. Thus, a great storm concentrated below the main tributary reservoirs would provide a grave threat to Chattanooga.

Addition of flood storage anywhere in the system adds flexibility to overall operation capability. The addition of Tellico would be particularly advantageous because it would be located in the area of least present control.

The Fort Loudoun project is one of the main river dams upstream from Chattanooga. Because of the interconnecting canal between the Fort Loudoun and Tellico Reservoirs, storage capacity could be interchanged to help compensate for nonuniform distributions of storm runoff. For concentrated floods falling in either drainage area, the interconnecting canal allows an operation providing control similar to what would be realized from adding an additional reservoir to the main stem and two reservoirs to the Little Tennessee River.

Tellico Reservoir alone would add more flood storage reservation to the system than what is presently provided by the Fort Loudoun Reservoir, amounting to 126,000 acre-feet (elevations 807-815) during the winter flood season. It would also aid in reducing flood damages to smaller communities and to agricultural lands along the Tennessee River.

The value of the flood detention capacity which would be provided by the Tellico project is estimated to be \$1.02 per acre-foot, which gives an equivalent annual value of approximately \$505,000 for the 126,000 acre-feet. This value is based upon an analysis of the effectiveness of the project, as a part of the system, in the reduction of flood damages.

NAVIGATION

The navigation benefit attributable to a navigation project is based on the savings which would be derived from moving various commodities over a route involving barges as compared with the least expensive alternative route. Generally, the next cheapest alternative is via all-rail, although a truck or combination alternative sometimes exists. Total costs to the shipper (1) for the barge route are made up of the barge rate plus rates for any necessary ancillary rail, truck, or transfer service and (2) for the alternative route are

the rail (or truck) rate plus any switching or service charges. The transportation saving is the difference by which the first is lower than the second cost. Published rates are used when applicable; estimated rates are used otherwise.

The navigation benefits for the Tellico project are based on a careful analysis of traffic and shipper savings elsewhere on the navigable Tennessee waterway and on estimates of the traffic potential of the industrial sites developed by the Tellico project. These sites, totaling some 5,000 acres, would generate an annual equivalent benefit of \$400,000.

POWER

The power benefits from the Tellico project would be the additional energy which could be generated at the Fort Loudoun powerhouse due to the diversion of the Little Tennessee River flows, through the canal, to the Fort Loudoun Reservoir. By this means about 85 percent of the potential energy production at the Tellico site can be gained without installing generating units at the Tellico project.

Hydro power benefits usually are measured by the cost of adding an equivalent amount of generating capacity and energy by the best alternative available. In this case, since no capacity would be added to the system, the value of the additional hydro energy has been measured in terms of the savings in system production expense brought about by the reduction in kilowatt-hours which otherwise would have to be produced by existing and future system steam plants. On this basis, the additional 200,000,000 kilowatt-hours of power which would be generated yearly at the Fort Loudoun Dam as a result of the Tellico project would have an annual value of approximately \$400,000. Since this figure represents only the recent cost of the best alternative means of producing this energy, it is a minimal estimate of benefit. The value of the power produced would be greater; and because the costs of alternative sources of power continue to increase substantially, the alternative cost used here as the power benefit is most likely understated for future years.

RECREATION

General recreation benefits for the project are exclusive of fishing and hunting gains and losses which are considered separately elsewhere in the evaluation. Recreation specialists estimated the usage which could be expected for the remaining types of water-based recreation. Use of access areas and other public recreation facilities has been evaluated and values ranging from 50 cents to \$1.50 have been placed on visitation estimates depending upon the type of use and facilities involved. These values when applied to the estimated annual use, which would eventually reach some 1.5 million visits, result in an annual equivalent benefit of \$1,440,000.

The following classes of land within the Tellico purchase boundary will be related to recreation.

<u>Recreational Area</u>	<u>Approximate Acreage</u>
TVA access	700
General recreation -	
Scenic protection areas	11,500
State park	1,000
County park	200
Commercial recreation	1,000

The ten TVA access areas will be developed recreation sites. Following is an estimate of facilities which will be provided at these sites.

Camping - Sites	600
- Bathhouses	18
Picnic tables	215
Launching ramps - 20 Foot	6
- 30 Foot	11
Landing piers	14
Miles of walkway	10

FISH AND WILDLIFE

There are three categories within the fish and wildlife benefit: (1) sport fishing, (2) commercial fishing, and (3) waterfowl hunting. The initial annual value of sport fishing would be \$175,000, consisting of \$165,000 warmwater fishing and \$10,000 coldwater fishing. These values are based on the Inter-Agency schedule of \$1 per trip for warmwater fishing and \$2 per trip for trout. On the same basis, the present river fishery is worth \$53,350.

Fisherman use of both the river and the lake could be expected to increase in the coming years. TVA experience indicates a reasonable rate of increased use is 3 percent a year for 10 years, 1.5 percent for the next 15, and a leveling off thereafter. For the Tellico project, average annual value over the life of the project would amount to \$250,000 and for the present river fishery, \$85,600. Subtracting the two leaves an annual net sport fishery benefit of \$194,400.

Presently, there is virtually no commercial fishing on the Little Tennessee River but fisheries specialists estimate that some \$28,000 worth of commercial fish would be available annually from the reservoir.

Most of the area to be impounded is now agricultural lands suitable for rabbit, dove, and quail hunting. After deducting present river area, estimated hunting losses approximate 2,586 hunter-days valued at \$1.50 each for a total present value of \$3,880. Unless the state develops small dove-shooting areas, the only postimpoundment wildlife value will be a few hundred waterfowl hunting trips worth about \$1,200.

The net annual fish and wildlife benefit estimate for the Tellico project is \$220,000.

WATER SUPPLY

The minimum flow of the Little Tennessee River in the reach to be impounded by Tellico Dam is considerably greater than expected future water supply requirements for the area. Therefore, there is no benefit claimed for additional water made available by the reservoir. The elevation of water in the reservoir as compared with the stream channel, however, would result in savings derived from reductions in power requirements for pumping of municipal and industrial water. The average reduction in pumping head would be 30 feet or more. In addition, the heights of intakes could be reduced from about 40 to 15 feet which would allow for savings in intake concrete, screens, pump columns, etc. The equivalent annual value of these benefits is approximately \$70,000.

SHORELINE DEVELOPMENT BENEFITS

Shoreline development, also called shoreline land value enhancement, is an evaluation made in terms of anticipated increases in market value as a result of enhanced use potential created by the project. The existence of this enhancement is amply documented by experience with the present TVA reservoir system. The enhancement is claimed as a project benefit only for those lands which do not have to be in a restrictive use to achieve other project benefits.

In purchasing land for a reservoir project, such as Tellico, TVA acquires land adjacent to the reservoir to (1) assure maximum development and use of the reservoir for purposes of public benefit, (2) prevent unreasonable severance damages, and (3) avoid undue expense in providing access to isolated tracts.

Land value enhancement is estimated by experienced land appraisers based upon careful examination of the lands involved. Drawing on knowledge gained by past experience, all lands are considered from standpoints of desirability and probable sequence of development, delineating lakeshore zones into development tracts. This development plan is based upon an overall land use allocation made by the various planning and program organizations involved, including other federal, state, and local agencies.

Through comparisons with real estate markets in similar existing reservoirs, adjustments are made for population, access, and other variable factors to determine potential land values. Using existing reservoirs as guides, estimates are then made of the time required to reach the highest and best use values. The total potential land

value must be adjusted for the expense of sales, closing costs, and access roads. In TVA's experience, these costs average 10 to 15 percent of the gross potential. This adjusted potential land value is discounted to its present worth through the standard use of compound interest and annuity tables. The resulting value is the shoreline development benefit attributable to the project. The value of the purchased land in its present state is included as a part of the project cost.

Some lands outside the project purchase boundary would also be enhanced in value as a result of the project. The increase in value accruing to these adjoining lands is treated as a benefit attributable to the project. These two types of shoreline development combine to produce an equivalent annual benefit of approximately \$710,000.

REDEVELOPMENT BENEFITS

The construction, operation, and maintenance of the Tellico project will provide employment to some of the otherwise subemployed labor in the area. Based on an analysis of employment applications and other data from the area as compared with prospective employment required for the project, it was estimated that \$500,000 of project wages would represent fuller employment of the otherwise subemployed. The \$15,000 redevelopment benefit quoted in the Tellico draft environmental statement represents the annual equivalent of this value.

ENHANCED EMPLOYMENT

In a subregion that is experiencing net out-migration of workers but yet has unemployment and underemployment there exists immobilized and underutilized national and regional human resources. If these resources are to be fully and efficiently utilized, it must take place in the subregion. The Tellico project will add to the opportunities for doing this. It will provide a navigable waterway to a potential industrial area about 20 miles from the main river, providing assured water levels and creating sites along the shorelines ideal for industrial development.

The enhanced employment benefit from more productive use of the subemployed in project-induced new jobs is estimated by (1) eliminating from the benefit computations those categories of jobs which have skill requirements that would keep them from being filled from the subemployed labor force and (2) crediting for the remaining jobs the difference between wages to be paid and an average alternative subemployment wage of \$3,300 per year. In the case of the Tellico project, the time period used for estimating the benefit was conservatively limited to 25 years rather than the full life of the project. These enhanced employment benefits are discounted for the buildup period and credited to the project only in proportion to the project's share of the public investments considered necessary to accommodate the new jobs.

It is necessary therefore to forecast the types of industry that would find locational advantages in the combination to be created by the project. The most important characteristic of this combination of factors is that the location is the closest possible to eastern markets but still on the inland waterway system where TVA power is available. Ten types of manufacturing industries were identified which would find advantages in the conditions created by the Tellico project. The identified industries were characterized by manufacturing operations which (1) have inputs of raw materials that are bargeable, (2) require cold, industrially pure water in abundant supply, (3) have sufficient need for low-cost power to make it a location factor, (4) have annual wages per employee above the average for Tennessee, (5) have shown rapid growth in the past few years, and (6) have strong markets easily reachable by land in the Southwest. The number of employees for an average-size plant in these industries and their typical customer and supplying satellites aggregated approximately 10,000. While this estimate was used for planning purposes, a more conservative minimum level of 40 percent of the estimated potential was used for benefit computation. The minimum 4,000 industrial jobs at 1966 pay levels would produce an annual payroll of about \$27,000,000. Typical regional relationships between incremental growth in industrial jobs and incremental growth in trade and service jobs indicate an additional 2,600 nonmanufacturing, nonfarm jobs with an annual payroll of \$16,000,000 would be induced. Assuming a growth curve similar to that of the private industrial investment on the Tennessee River waterway for a 25-year period, the above procedure and employment estimates produced an enhanced employment benefit with an annual equivalent of \$3,650,000.

EXHIBIT 13

Tennessee Valley Authority

Tallapoosa Project

Project Authorization and Planning Documentation

Public law and date: Tennessee Valley Authority Act of 1933 - May 18, 1933
 Executive Order Statement and date: Final Environmental Impact Statement filed with CEQ on February 10, 1972
 Phase I Design Memorandum/Reinitiate Plan Report and date: N/A

Location: The Tallapoosa Dam site is in Loudon County, Tennessee, near Lenoir City at mile 0.3 on the Little Tennessee River.

Project Description and Purpose: The Tallapoosa Dam will create a reservoir extending upstream approximately 31 miles and connected to the Fort Loudoun Reservoir by a short canal. The canal enables the navigation and power purposes of the project to be attained without construction of a navigation lock or powerhouse. The navigability is achieved in TVA flood control operations. The project will add 126,000 kilowatts of capacity to the TVA system and will extend navigation to an important rail and highway corridor to the Little Tennessee River. It will add an average of about 200,000 kWh annually to the TVA system and thereby increase the economic project will stimulate the economy of the area through power generation. The project will provide flood control, water supply, and recreation and transportation and by providing a water and aborigine resources with great potential for commercial wildlife, water supply, and redevelopment benefits. The project will also provide fish and

A. Economic Data

1. Federal and Non-Federal Financing:

First Costs	Construction	Land and Relocations	Total
Federal			
Bank Through FY 1977	\$77,619,000	\$36,681,000	\$104,500,000
Cost to Complete	11,369,000	131,000	11,500,000
Total	\$89,188,000	\$36,812,000	\$126,000,000
Non-Federal			
Bank Through FY 1977	-	-	-
Cost to Complete	-	-	-
Total	-	-	-
Total: Federal & Non-Federal	\$89,188,000	\$36,812,000	\$126,000,000
Annual Operation and Maintenance			
Federal	-	-	\$205,000/
Non-Federal	-	-	-
Total	-	-	\$205,000/

1/ Per FY78

2. Repayment of Federal Financial Costs:

	Paid or to be Paid as Costs are Incurred	Deferred	Terms of Repayment
First Costs			
Operation and maintenance	\$3,000	\$225,000	Power revenues
			Power revenues

3. Effective Composite Project Cost Sharing by Purpose if Available from Section 25 (1974 Dollars).

Purpose	Appropriated Funds	Non-Appropriated Funds	Total
Hydropower	0	\$319,000	\$319,000
Other	\$2,831,000	0	\$2,831,000
Total	\$2,831,000	\$319,000	\$3,150,000

4. Benefit-Cost Ratio and Net Economic Benefits

Current Discount Rate (6-2/3%) 3/

Benefit-cost ratio based upon remaining primary benefits and costs:

Net remaining economic benefits (average annual): \$2,215,000

Authorized Rate, if Applicable: Specify Rate: N/A

Benefit-cost ratio based upon total primary benefits and costs: N/A

Net economic benefits (average annual): N/A

Discount Rate Applicable for Appropriations for Initial Construction Funding, if Applicable: Specify Rate: 3-1/4%

Benefit-cost ratio based upon total primary benefits and costs: 1.51

Net economic benefits (average annual): \$1,310,000

1/ Revenue derived from TVA power operations 1968 Price levels

B. Environmental

1. Extent of significant impacts

a. Agricultural and forest land eliminated from production or potential production $\frac{1}{2}$

- (1) Crop land type I-IV, number of acres 33,000, SCS Class I or II 17,000
- (2) Range of grazing land type VI, number of acres 8600
- (3) Forest type oak-hickory, number of acres 1800, productivity 85-150 on ft/ac/yr
- (4) Unique crop land type --, number of acres none.

b. Upland wildlife habitat eliminated or substantially modified: $\frac{1}{2}$

- (1) Acres 15,000, habitat type forest & open land, wildlife type white-necked stilt, great blue heron, blue-winged teal, mallard, and others.
- (2) Local and regional importance of habitat minor.

c. Wetland eliminated or substantially modified:

- (1) Acres minor, type I (Circular 39)
- (2) Primary plant species oaks, sycamores, willow, maple, ash, elm, pecan, minor grasses, sedges, and other.
- (3) Species of fish and wildlife affected wood duck, mallard, blue-winged teal, bluegill, largemouth bass, channel catfish, white bass, and others.
- (4) Local and regional importance of habitat minor.

d. Fisheries resources, areas and types

- (1) Commercial type --, area affected None
- (2) Sports type 85% cold water, 15% warm water, miles of stream affected 33
- (3) Local and national significance significant locally, minor nationally

e. Water quality: (specify, without mitigation, if any)

- (1) Eutrophication in impoundments: No
- (2) Reduced downstream flow: No
- (3) Salinity increases: No
- (4) Pollutant type and amount: None
- (5) Other: None
- (6) Compliance with state standards: Yes

f. Inducement for flood plain development:

- (1) urban Acres --, type N/A
- (2) agricultural Acres 0, type N/A

$\frac{1}{2}$ The same land may be shown in more than one category (including wetlands habitat, if any).

a. Benefits and Allocated Costs:	Average Annual Benefits $\frac{1}{2}$ (\$ in M)	Average Annual Costs $\frac{1}{2}$	Number of Beneficiaries
Flood Control	\$605	7	3/
Navigation	400	5	114
Recreation	400	5	114
Power	400	5	114
Water Supply	1440	19	505
Fish and Wildlife	320	3	77
Shoreline Development	70	1	20
Recreation	710	10	203
Enhanced Employment	3650	49	100 people
TOTAL	\$7410	100	\$2350

4. Local Cooperation Requirements

Local sponsor name: None

7. Net Employment Impact:	NUMBER INDIVIDUALS			
	At Construction Peak	Post Construction	Peak	Date
Private	300	300	300	March 77
Public	35	35	35	March 77
Other	335	335	335	March 77
Total	670	670	670	March 77

8. Have opportunity costs of foregone recreation benefits and hydrogeneration been incorporated in the most current B/C ratio calculation? If No, estimate the dollar value of foregoing benefits, using market values as a basis for calculation. Yes.

9. Are project costs within the current project authorization ceiling? N/A

10. Water use as proposed by project (irrigation): Volume of water diverted vs. volume of water consumed; municipal and industrial: average daily per capita water use).
Municipal - 160 gal/per capita/per day
Industry - 10,000 gal/per capita/per day

$\frac{1}{2}$ Taken from FEIS

$\frac{1}{2}$ TVA preliminary allocation studies

$\frac{1}{2}$ 23,000 structures in Chattanooga and additional flood relief along the Tennessee River, lower Ohio and Mississippi Rivers.

$\frac{1}{2}$ Consumers of water borne products

$\frac{1}{2}$ TVA serves 2,261,413 residential and 270,032 commercial and industrial and 11 Federal customers.

5. Existing and potential recreational uses: (type, magnitude)
- (1) Type canoeing: rating - 1,800 trips/year small game hunting - 9000 trips/year collaborator fishing - 31,100 trips/year warm water fishing - 2000 trips/year
 - (2) Projected needs: specific surveys for project area not available
6. Endangered or threatened species: (specify)
- (1) Federal list: Small Darter, Pygmy blenni (B)
 - (2) Proposed Federal: Anthony's river snail, Akersella anthonyi (C)
 - (3) State list: Blue catfish, Crayfish along (C)
 - (4) Proposed state: none
7. Potential induced downstream flooding: (magnitude, frequency, flooded area)
- (1) Flood magnitude: None
 - (2) Flood frequency: -
 - (3) Flooded area: -
8. Cultural, historic and archaeological resources: (type, extent)
- (1) Type historic, prehistoric, and historic archaeological
 - (2) Extent: 1960 period British fortification and 1980 period U. S. settlement fortification (Tollaco Mound) and surrounding area, two houses, school, cemeteries, outcrops (all)
 - (3) On Federal Register: Two houses, two forts, two historic Cherokee villages, and church camp ground
 - (4) Proposed for Federal Register: One farm-outbuilding complex
 - (5) State Register: None
9. Parks, wilderness areas, wild and/or scenic rivers: (specify)
- (1) Name: None
 - (2) Legally designated: -
 - (3) Proposed for designation: -
 - (4) Other areas having outstanding wilderness or scenic characteristics: -
10. Nature and extent of subsidence, mitigation of, or compensation for any impacts stated in 8f above.
- The small darter which was listed as endangered on November 10, 1976, by the Department of the Interior, is still under study and review by TVA. A delisting request has been filed with the Department of the Interior (February 1977) and is under consideration by the Department. Seven transplants of darters were transplanted to the Hiwassee River in 1975. The transplants were successful so far as judged by survival, maturity, reproduction, and the transplanted fish continue to be closely observed. TVA has filed a permit request for transplanting additional small darters to other locations (Holston River) with the Department of the Interior (February 25, 1977).
- Also in the Little Tennessee River, Anthony's river snail is proposed for threatened listing (43 Fed. Reg. 2507(1977)). TVA has the listing of this species under review and consideration and expects to respond to the proposed listing by the April 12, 1977, deadline.
- The archaeological significance of Old Fort Loudoun has been fully investigated in cooperation with the Tennessee Department of Conservation, TVA, the Department, and the Fort Loudoun Association. The significance of the historic significance of the site by restoration of the fort on a raised landfill. Development plans include new access roads and an interpretive visitors center and museum.
- The Tollaco Mound has been the subject of extensive archival research and archaeological investigations. Interpretive site type restoration is presently underway. The archaeological investigations were also conducted in cooperation with the University of Tennessee.
- Extensive archaeological investigations of other sites within the reservoir area have been conducted since 1967. These investigations were done in cooperation with the National Park Service and the University of Tennessee. TVA has agreed with the representatives of the Cherokee Nation for development of selected sites.
- Two houses, school, slave graveyard, and an elm tree are being held for later use as elements of a regional park, restoration and historic interpretive plans which will be developed in cooperation with state agencies.
- Fishing on the reservoir is expected to be over five times the present use of the reservoir. Fishing for boat fishermen and others will be improved. Weeding and abatement should increase although overall use by migratory waterfowl may decrease. The change in ownership of shore lands from private to Federal will enhance wildlife development by providing stable and protected habitat.
- C. Safety: No safety problems
- D. Additional
1. Identification of beneficiaries including for direct beneficiaries estimated number of individuals, farms who are eligible, and identification of all beneficiaries resulting over 5% of primary project benefits. None
 2. Any involvement with international obligations. No
 3. Extent of displacement of area residents. All relocations have been accomplished.
 4. Status of local currencies and contractual commitments of non-Federal interests. None

5. Extent to which project beneficiaries have made investments whose return is contingent upon completion of the Federal project. N/A
6. Effect on Indians (Federal trust responsibilities, etc.) None
7. Litigation. The appropriations for the Tellico project, a Federal multi-purpose dam and reservoir project, were first made by Congress in October 1966 and construction began in March 1967. In 1973, when the project was 50 percent complete, a small 3-inch fish, later to be named the snail darter, was found in the area of the river to be impounded. When the Endangered Species Act of 1973 was enacted in December 1973, the project was over 50 percent complete and two years later, on November 10, 1976, at which time the project was about 75 percent complete, the fish was placed on the endangered species list. A suit was filed in February 1976 to halt the project based on the claim that completion of the project would jeopardize the snail darter's continued survival. Congress had appropriated funds for the Tellico project each year since 1966. The Congressional House and Senate Appropriations Committee, being fully informed of the snail darter situation and of the pending suit, included in their reports recommending appropriations specific directions that the project be completed as quickly as possible in the public interest. Consistent with this congressional action, the district court, after a full trial, concluded that it was not the intent of Congress that the project be halted in its advanced state of completion and denied an injunction. On January 31, 1977, the Court of Appeals for the Sixth Circuit reversed the district court decision and enjoined closure of the dam and completion of a canal which connects the Tellico project to TVA's Fort Loudoun Dam. Under this injunction other work incidental to completion of the project, such as road building and seeding, may be continued. Continued industrial development activities are also permitted under the injunction. The Sixth Circuit directed that the "injunction shall remain in effect until Congress, by appropriate legislation, exempts Tellico from compliance with the Act, or the snail darter has been deleted from the list of endangered species or its critical habitat materially redefined." TVA will petition the Supreme Court of the United States to review the Sixth Circuit decision. TVA has petitioned the Department of the Interior (February 1977) to delist the Little Tennessee River as critical habitat for the snail darter since experts now agree that the Little Tennessee River, with the dam structures in place, cannot sustain a viable, natural population of snail darters.

E. Alternatives

1. Reasonable alternatives where available. None
2. What use of project can be made in present scale or what changes are necessary to make it useful short of completion? The dam is ready for closure.

December 13, 1977

The Honorable Abraham A. Ribicoff, Chairman
Committee on Governmental Affairs
The United States Senate
Washington, D.C. 20510

Dear Senator Ribicoff:

In accordance with section 236 of the Legislative Reorganization Act of 1970 (31 U.S.C. § 1176 (1970)), we are reporting the actions taken by TVA with regard to the recommendations to TVA contained in the General Accounting Office's (GAO) report issued on October 14, 1977, entitled The Tennessee Valley Authority's Tellico Dam Project--Costs, Alternatives, and Benefits.

We believe it is significant that the GAO report does not take a position for or against Tellico. Rather, after some seven months of study, the GAO concluded that the nearly completed Tellico project should be restudied by TVA to determine whether it should be used or scrapped in favor of an alternative use of the Little Tennessee River Valley. The final report is essentially the same as GAO's draft report mailed to TVA for comment in early August 1977. We submitted to GAO at that time our detailed chapter-by-chapter comments reflecting TVA's views on the report. Those comments, which are included as an Appendix to the GAO report (pp. 53-78), are still germane, and copies are enclosed for your convenience.

While we disagree with many of the "facts" appearing in the GAO report (see enclosed comments), the principal point is that the factual material reported by GAO does not support its conclusion that the project should be reevaluated from a benefit-cost standpoint. GAO recognizes that

- the project is virtually completed and has been ready for closure since January 1977;
- \$103 million (now \$107 million) of the project's estimated cost of \$116 million has been invested to achieve the public benefits from Tellico;

EXHIBIT 14

The Honorable Abraham A. Ribicoff, Chairman

--\$47 million of the \$103 million expended as of February 1977 would be lost (from a public benefit standpoint) if the project is not completed; while some public benefit would be recovered from the remaining \$56 million, the benefit probably would not be proportionate with the expenditures;

--in light of the snail darter, the only viable alternative to the Tellico project is the so-called scenic river alternative, which Congress has considered and rejected, first in 1966 before any money was invested in Tellico, and each year thereafter in appropriating a total of \$116 million for the project; and

--it would cost up to \$16 million to remove the dam structures to accommodate the snail darter and restore the area to the state it was in at the time Congress decided that the project should be begun. Of course, it would be many years before the replanted trees and vegetation approach the former state of the area. In addition, if the scenic river alternative is to benefit more than just a few individuals, substantial additional expenditures would be required to develop public use areas and attractions, access roads, and other facilities.

With these facts, it seems incongruous that GAO concluded that TVA should conduct a remaining benefit and remaining cost analysis of the Tellico project and the scenic river alternative. To support this conclusion, GAO says that the last benefit-cost study (showing an overall benefit-cost ratio of 3:1) was conducted by TVA in 1968 and is therefore too old; that there were faults in some of the methodology used by TVA to estimate project benefits; and that certain aspects of the scenic river alternative, primarily the existence of the snail darter in the Little Tennessee River, have not been previously considered. We simply do not think GAO's conclusion makes good sense.

The Tellico project has been under the continuous scrutiny of Congress since 1965. The environmental and economic pros and cons of the project were vigorously argued before Congress in 1965 and 1966 before the funds for starting the project were appropriated. The same arguments which are currently being urged against the Tellico project were fully considered by Congress in 1965 and 1966 and rejected. These arguments have been made each year thereafter during appropriations hearings. Scrutiny of the Tellico project has not been limited

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to Congress. In 1971, the environmental aspects of the project were challenged in the courts under the National Environmental Policy Act, and, after full trial on the merits, the courts held that TVA's final Environmental Impact Statement was fully adequate and in compliance with NEPA.

The fact is that the project has been studied and restudied, argued and reargued, and the project has been built and its benefits are now ready to be enjoyed. Those benefits justify its completion now regardless of how they were evaluated in 1968 or whether improved benefit-cost methodology can refine the precision of their statement. For example, each year the project will generate some 200 million kilowatthours of electricity, presently valued at about \$3.5 million. The value of this as well as the value of other benefits, such as flood control, the 6,600 new jobs that will be created in an area characterized by poverty and outmigration of young people, navigation, and recreation, have obviously changed somewhat over time. But it makes little sense to delay their realization simply to recount them. In light of GAO's suggestion that any new benefit-cost study should be based on the remaining cost to complete the project, and since any one of the project's major benefits would more than justify the relatively small costs to complete the project, we think that a new study would be a time consuming, expensive exercise to prove the obvious and would only further delay the public's enjoyment of Tellico's benefits. Moreover, the project was studied only a few months ago by a team from OMB, CEQ, and TVA as a part of President Carter's review of water projects and found to have a remaining cost-benefit ratio of 7:1.

Except for the discovery and listing of the snail darter as an endangered species, the underlying facts which support Tellico have not changed significantly since the studies were completed and the final Environmental Impact Statement was provided to Congress and approved by the courts. From our view we have done everything possible to keep Congress fully informed as to the snail darter issue and have actively pursued a conservation program to insure its survival through transplantation. We believe our program has been a success. Our biologists tell us that the 710 snail darters moved to the Hiwassee River have now reproduced for the second successive year and that as many as 2,000 now live in the Hiwassee. This is in sharp contrast to the Little Tennessee River, where biologists generally agree that the fish are dying out. To assume, as GAO apparently

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does, that further congressional consideration of the snail darter question would be aided by an updated dollars-and-cents benefit-cost analysis seems wrong. The question is simply one of policy. Even the professor who discovered the fish has not claimed that the snail darter has any special value other than its existence as one of the more than 80 darters living in Tennessee.

For the past three years, TVA has reported to both the Senate and House, through the appropriations committees about the Tellico project and its effect on the snail darter. We have testified in detail about the status of the project, the status of the snail darter, our transplant efforts, the effect of the litigation and other matters bearing on this question, and have asked Congress for guidance as to how to proceed. Each year we have been directed to complete the project as promptly as possible in the public interest. H.R. Rep. No. 94-319, 94th Cong., 1st Sess. 76 (1975); S. Rep. No. 94-960, 94th Cong., 2d Sess. 96 (1976); H.R. Rep. No. 95-379, 95th Cong., 1st Sess. 104 (1977); S. Rep. No. 95-301, 95th Cong., 1st Sess. 99 (1977). Over \$107 million has been invested in the project over the last decade, and, as already noted, the dam has been ready for closure since January 1977. Only this year, as recommended by the President in his budget, \$11.5 million was appropriated for the completion of various project activities including remaining roads, recreation facilities, and archaeological and historical reconstruction work. If the project is allowed to be completed in fiscal 1979, less than \$2 million in new appropriations will be needed. In contrast, an amount greater than that sum has already been lost in foregoing the power benefits alone during 1977. Moreover, as previously noted, it would cost over \$16 million to return the area to the condition it was in at the time Congress decided to begin the project.

One final point deserves mention. As we informed GAO, we question from a national policy standpoint the desirability of requiring a restudy of a project over 90 percent complete. We believe this approach will create an unfortunate precedent which might keep every congressional project in a perpetual state of uncertainty. Moreover, the delays in the administrative and judicial process and the present recommendation for further indecisiveness which have characterized this project are the very faults which plague efforts in this country to overcome our social and economic problems, and we

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believe are to a large extent the basis for the negative views for government held by so many.

In light of the above, we do not believe that GAO's recommendation to TVA to restudy the Tellico benefit-cost analysis should be followed. As we have previously informed GAO, however, if Congress wishes us to perform another benefit-cost analysis, we will gladly undertake it.

We appreciate the opportunity to provide you with this information.

Our new Board member, S. David Freeman, has not as yet formed an opinion on the Tellico project.

Sincerely yours,

Aubrey J. Wagner
Chairman

cau
NDV:CAW:HSS:JAR
Enclosures

cc: Mr. W. L. Jenkins, E12A11 C-K	Mr. M. I. Foster, 200A LB-K
Mr. S. David Freeman, E12A9 C-K	Mr. G. H. Kimmons, W12A9 C-K
Mr. Lynn Seeber, E12B16 C-K	Mr. E. H. Lesesne, 448 EB-K
Mr. H. S. Sanger, Jr., E11B33 C-K	Mr. T. H. Ripley, FOR B-N
Mr. J. S. Barron, E12C29 C-K	Mr. John Van Mol, E12A4 C-K
Mr. H. P. Claussen, 139 EB-K	Mr. L. L. Calvert, Washington

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TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

August 10, 1977

Mr. Monte Canfield, Jr., Director
Energy and Minerals Division
General Accounting Office
General Accounting Office Building
441 G Street
Washington, D.C. 20548

Dear Mr. Canfield:

Thank you for the opportunity to comment on the General Accounting Office's revised draft report on TVA's Tellico project. Our detailed chapter-by-chapter comments are enclosed.

We are disappointed that many of the comments we previously provided to GAO were not included in the revised draft report, and we again suggest that they be included in the final report in order to provide a more balanced presentation of the issues, as well as to correct a number of errors and mischaracterizations that remain. As you know, during the week of July 11 these comments were submitted to and discussed with GAO's Atlanta staff. It was our understanding that the substance of TVA's comments would be incorporated into the final report to balance the presentation of contrary views of the Tellico opponents, which had been presented in the earlier draft without critical analysis. Many of the corrections and changes agreed to as necessary for accuracy and balance have not been included in the revised draft.

Even without the incorporation of our comments, however, we believe that the material in the revised draft report does not support GAO's primary conclusion that the Tellico benefit-cost analysis should be updated to determine whether the virtually completed project should be used. The draft expresses concern over the age of the benefit-cost analysis, certain faults which GAO believes exist in the methodology used by TVA in 1968 to estimate some of the benefits, and ultimately concludes that GAO is unsure whether the Tellico benefits have been understated or overstated. If the present issue were whether or not to authorize a new project, those concerns would be relevant. The Tellico project, however, is over 90 percent complete and over \$103 million of the estimated \$116 million total cost has already been invested (as of February 1977) to achieve the project's benefits. And, although GAO questions certain methodology used by TVA in 1968 to value benefits, it is apparent that the current value of any one of the project's major benefits more than justifies the relatively small cost to complete it.

Mr. Monte Canfield, Jr., Director

August 10, 1977

According to GAO's calculations, some \$47 million of public funds would be completely wasted if the project is not completed. While some public benefit would be recovered from the remaining \$56 million, GAO found that those benefits "probably will not be proportionate with project costs." In addition, before the "scenic river" developments which the report suggests be considered in the reanalysis could be undertaken, approximately \$16 million of new money would have to be spent to remove the reservoir related structures and restore the project area. To obtain any benefit from the "scenic river" alternative for more than a few individuals, substantial additional expenditures would be required for public use areas and other facilities.

As the GAO draft report recognizes, the "scenic river" alternatives suggested by project opponents are not new. These are the same alternatives which have been considered and rejected time and again by Congress both before and after Tellico's initial funding. The "scenic river" alternatives were also fully examined as a part of the 1971 review performed by TVA pursuant to the National Environmental Policy Act and found to be 2 percent of the Tellico benefits. Neither passage of time nor technical inaccuracies in some of the benefit-cost methodology, even if true, would change the result of this analysis. We simply do not think it makes sense to lose the public benefits from Tellico, waste the nonrecoverable expenditures in the project, and spend an additional \$16 million in an effort to return the land to the state it was in at the time Congress decided that the project should be begun.

We wish to make clear that TVA would hasten to prepare an updated benefit-cost analysis of the Tellico project and its alternatives if one were needed or appropriate under the circumstances. We do not think one is. Over the last decade, Congress has authorized the expenditure of over \$100 million to make possible the public benefits Tellico will provide. The project has been studied and restudied, argued and reargued, and the project has now been built and its benefits ready to be enjoyed. Those benefits justify its completion now regardless of how they were evaluated in 1968 or whether improved benefit-cost methodology can refine the precision of their statement. For example, each year the project will generate some 200 million kilowatthours of electricity, presently valued at about \$3.5 million. The value of this as well as the value of other benefits, such as flood control, the 6,600 new jobs that will be created in an area characterized by

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poverty and outmigration of young people, navigation, and recreation, have obviously changed somewhat over time; but it makes little sense to delay their realization simply to recount them.

In addition, from a national policy standpoint we question the desirability of this approach. We believe to require still another full-scale review at this time will create an unfortunate precedent which might keep every congressional project in a perpetual state of uncertainty. Nevertheless, if Congress wishes us to perform another benefit-cost analysis, we will gladly undertake it.

In the event our suggestions are not incorporated into the text of the final report, we ask that this letter and the enclosed chapter-by-chapter comments be included in your report to Congress.

Sincerely yours,


Lynn Seeber
General Manager

Enclosure

COMMENTS ON REVISED GAO REPORT,
TELLICO PROJECT

CHAPTER I

This chapter is mainly descriptive; nonetheless several errors and omissions should be mentioned.

1. Petition to delist--The report incorrectly refers in several places (pp. ii, 6(a)) to two TVA petitions to delist the Little Tennessee River as the critical habitat of the snail darter. As we pointed out to GAO on several occasions, only one petition has been filed. Because the Fish and Wildlife Service had not acted on TVA's February 28 petition, TVA sent a followup letter to the Service on June 30, 1977. The petition has still neither been acknowledged nor acted upon. The petition was filed because biologists now generally agree that the Little Tennessee River, with the dam structures in place, cannot support a natural viable population of snail darters. In contrast, the Hiwassee River, where 700 fish were transplanted, apparently will support a snail darter population, and the current snail darter population in the Hiwassee is several times as large as the one in the Little Tennessee River.

2. NEPA lawsuit--In the earlier Tellico litigation brought under the National Environmental Policy Act (NEPA) by environmentalists and one affected landowner (rather than "affected landowners" as indicated by GAO (p. 3)), the loss of

one or more rare or endangered species of fish and the development of a scenic river alternative to the Tellico project were expressly considered, and the adequacy of TVA's EIS was upheld by the courts.

3. What is TESC?--The Tennessee Endangered Species Committee (TESC) is referred to throughout the report without identifying the group. It is a Knoxville area organization of about 100 current members, mainly students or recent graduates of The University of Tennessee, who oppose the Tellico project. Moreover, it was three individuals (two law professors and a law student), and not "a group of scientists and environmentalists" (p. 4), who originally filed the snail darter suit.

CHAPTER II

Although we do not fully agree with GAO's conclusion in Chapter II, that chapter does contain an objective analysis and assessment of the nonrecoverable costs if the Tellico project is not completed and used. One significant error should be corrected, however.

Site restoration--With regard to site restoration if the Tellico project is scrapped, the report (p. 14) suggests that "a portion of the earthen dam" could be removed "without great expense" but fails to point out the dangers involved. As we informed the GAO investigating team, partial removal of the

earthen section of the dam would not only cause periodic flooding behind the dam but, upon such flooding, would also create the probability of the failure of the remainder of the earthen section of the dam, with the consequent downstream damage to life and property, as well as the heavy sedimentation of the Tennessee River. Safe engineering practices would not permit the suggested partial removal of the earthen dam.

CHAPTER III

The discussion of alternatives in Chapter III is perhaps the most unbalanced presentation in the report. GAO reports the Tellico opposition proposals without any scrutiny of or challenge to the unrealistic cost estimates or claims made to support them. The report, in many instances, either fails to incorporate or distorts TVA's views on a number of issues, including archaeology, recreation, and agriculture.

1. Early alternatives--The discussion (beginning on p. 21) of the early consideration of alternatives is incomplete. It fails to mention that the Tellico Dam, as an extension of the Fort Loudoun project, has been planned as a part of the overall Tennessee River control system since the early 1940's. Indeed, the Fort Loudoun turbines were sized and built to accommodate the diversion of the Little Tennessee River flow. Congress first funded the project in 1942, but due to war material priorities, work was halted. Since, historically, a

principal design feature of Tellico was to provide a navigable canal between the existing Fort Loudoun Reservoir and the new reservoir which would provide additional navigation and hydro-electric power benefits without the cost of building a lock or adding generating facilities, the discussion of physical alternatives in the 1963 planning report was limited to dam design and site alternatives.

2. TVA's position on the need to reconsider alternatives--The report states that TVA "has not updated the scenic stream benefit-cost analysis or studied new alternatives" (p. 24), but fails to include the following statement which was submitted to the investigating team:

It is TVA's position that the question of the need for the project and the best use of the river has been fully debated in Congress, beginning in 1965 and 1966 when both project opponents and proponents expressed their views in hearings before both the House and Senate Appropriations Committees; that project alternatives were fully explored in the Tellico final EIS which was provided to Congress and approved by the courts in the NEPA litigation; that Congress has retained oversight of the project and has carefully analyzed it yearly; and that Congress, with full knowledge of the project and the snail darter situation, has directed TVA to complete the project "as promptly as possible in the public interest." The project is now virtually completed and has been ready for closure and use since January 4, 1977. It is TVA's feeling that the public should be allowed to receive project benefits for which over \$103 million in public funds has been invested to achieve.

In addition, the proposed scenic river alternative, which forms the heart of all the Tellico opposition proposals, was

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analyzed by TVA in 1971 as a part of the Tellico review under the National Environmental Policy Act and found to provide a level of benefits equal to 2 percent of the Tellico project benefits. Time has not changed this basic point.

3. Recreation--(a) The national park--The report includes a statement that Smoky Mountains National Park officials think that a scenic stream would more effectively alleviate overcrowding at the park than would a reservoir (p. 30). This is in sharp contrast to the statement of Vincent Ellis, former Superintendent of the Smoky Mountains National Park. After reviewing the Tellico Reservoir Recreation plan, Mr. Ellis stated in a letter to TVA dated April 3, 1972:

This wide variety of recreational facilities adjacent to a sizable water impoundment seems to be a well-conceived plan. Its close proximity to the Great Smoky Mountains National Park would offer an opportunity to spread the area visitor use and perhaps relieve some of the congestion currently being experienced.

(b) Balanced presentation of the recreation issue--

TVA's views on the desirability of the reservoir from a recreation standpoint were provided to the GAO investigators, but were not included in the report (p. 30). In summary, we pointed out:

Even if one looks solely at the question of recreation, we believe that a comparison of the relative merits of the river without a reservoir with the Tellico Lake tips decisively in favor of the project. Tellico Lake, which will be nestled among the mountains between the Smoky Mountains and the

Cherokee National Forest--together comprising over a million acres of primitive public land (without including the extensive, adjoining Pisgah, Nantahala, Chattahoochee, and Jefferson National Forests)--will have a spectacular beauty and recreational appeal which will attract as many as two million visitors annually, far more than the river could possibly support if developed only as a scenic river. The Tellico Lake will have only minimum winter drawdown and will have over 300 miles of highly usable shoreline permitting extensive use for recreation, such as boating, fishing, camping, picnicking, hiking, swimming, and other outdoor activities. Major historical sites are being reconstructed or restored for use in State-operated historical parks within the project area. The lake and developments along its shorelines would expand recreational opportunities presently being offered in the area and help alleviate high use pressures in the park.

TVA also believes that the conversion from a river to a lake will have very little effect on river recreation diversity in the area. The Little Tennessee River, as a canoe stream, has a number of counterparts nearby which are its equal or superior. The Hiwassee is considered far superior; and the Holston below Cherokee Lake, the French Broad above and below Douglas Lake, the Clinch below Norris, and the Nolichucky, all are at least its equal. The greater amount of trout fishing which occurs in the Little Tennessee waters takes place on the upper reaches of two of its tributaries, Tellico River and Citico Creek, which will not be affected by the project. Present trout fishing on the main stream occurs primarily on the upper 8 to 10 miles. This will be reduced to the upper 3 or 4 miles where trout fishing will still be possible on a put-and-take basis as at present. Contrary to the TESC statement in the report that trout from the river "regularly range from to five to twelve pounds," TVA's studies indicate that the average length

of a brown trout caught in the Little Tennessee is about 10 inches. In addition, opportunities for fishing of other types would be enormously increased through the creation of Tellico Lake. Finally, the availability of unimpounded streams will only be minimally affected since impoundments on tributary streams having a drainage area of over 25 square miles occupy less than 15 percent of the original river miles.

4. Cultural values--Here the report (pp. 31-34)

appears to intentionally create the impression that TVA has not fully considered archaeological and historical values in designing and carrying out the Tellico project. TVA's detailed comments on the site development proposals of project opponents are not included in the report. We think they are absolutely necessary for a balanced picture. A copy of those comments are therefore attached as an exhibit. Additional comments on the cultural value section which were excluded in the revised report are summarized below:

From the outset TVA recognized the historical and archaeological values of the Little Tennessee River Valley and has undertaken in cooperation with the National Park Service, The University of Tennessee, and others, an orderly and extensive program of survey and investigation of the archaeological resources in the project area, extending over a period of 10 years. The major archaeological and historical sites have been excavated, and three are being developed at substantial expense to accommodate the reservoir setting. The entire archaeological program has been reviewed and approved at regular intervals by TVA's Board of Archaeological Consultants, made up of nationally renowned archaeologists, including

Dr. J. O. Brew, Peabody Professor Emeritus of Archaeology at Harvard University and former Chairman of the Secretary of the Interior's Committee on Recovery of Archaeological Remains; Dr. John M. Corbett, former Chief Archaeologist of the National Park Service, who, after his death, was replaced by Dr. Stewart Struever of Northwestern University; and Dr. Robert L. Stevenson, former Chief of River Basin Surveys for the Smithsonian Institute.

The great wealth of information and material that has been recovered has provided important knowledge of the several prehistoric cultures and also the historic Cherokee presence in the Valley. Much of this material and information would have been unavailable with the land in private ownership and would otherwise have been lost or destroyed through flooding, erosion, cultivation, and looting. Representative collections are being made available to the Cherokee Nation and the Eastern Band of Cherokees. Based upon the unanimous report of a committee appointed by the principal Chief of the Cherokee Nation, TVA was commended for the archaeological work being conducted.

Funding for the recovery effort is believed to constitute the largest expenditure on archaeological investigation, survey, and salvage made on a reservoir project anywhere in the United States. TVA's preservation of the Chota townhouse site and its ongoing restoration of Fort Loudoun and the Tellico Blockhouse in a lake setting have the formal approval of the Advisory Council on Historic Preservation. The Bowman House and the McGhee Mansion, both National Register properties, have been acquired and are available to responsible historical groups for restoration. TVA regards these developments, plus its plans for the Citico and Bat Creek interpretive centers, as constituting significant preservation of the most important historic and archaeological sites in the project area.

6. Agriculture--This is one of the more glaring examples of the lack of balance and accuracy in this report. Not only is the TESC farm productivity story reported (pp. 34-35) unchallenged and even unexamined by GAO, TVA's position is not fully reported, and to the extent that it is reported at all, it is reported incorrectly.

The report acknowledges that in 1964 farm agricultural production on project property was \$1.9 million. It goes on to say that "TESC estimates annual yields of \$17 million at 1973 prices," but that TVA "estimates that annual yields would not yield more than about \$6.4 annually." What TVA actually said was:

TVA's 1964 analysis, which was based on a survey of project area farmers and the agricultural census, estimated agricultural sales in the 38,000-acre project area as yielding \$1.9 million, with only 160 acres of land in the Federal soilbank. Much of the income was from dairy sales, a high income product. If the analysis were updated using 1974 U.S. agricultural census data and factoring in present area farming changes, estimated sales would be approximately \$3.7 million. While TVA is not privy to the details of the Tellico opponents agricultural analysis . . . the \$17 million figure is totally out of line. Even assuming that all of the 25,500 acres of Class I-III farmland were placed into production--a highly unlikely circumstance since some of the land was devoted to roads, outbuildings, fences, or left with trees--and assuming that intensive farming methods were used, such as double cropping wheat or barley with soybeans, such land would yield about \$253/acre, according to University of Tennessee's 1974 Farm Planning Manual, an officially

recognized source for the state. Even with such generous assumptions, the annual yield would be about \$6.4 million and not the \$17 million indicated. That higher figure would require farm production yields of over \$660/acre for every Class I-III acre in the project area. A more realistic evaluation would recognize that some acreage would not be farmed, that double-cropping is not recommended for this area by the Tennessee Extension Service, and that Class III lands cannot be used for crops repeatedly year after year.

The report also failed to include the following information which was provided by TVA:

Based on TVA's evaluation at the time of the environmental statement, farming on what is now Tellico project lands accounted for less than 15 percent of the agricultural production in the three-county area and employed about 183 farmers. These losses, while significant, are considered acceptable in light of the estimated 6,600 industrial and trades and services jobs that will be created as the reservoir's industrial potential is developed, and in light of the present lack of employment opportunities which has caused outmigration of many of the young people from the area.

CHAPTER IV

TVA's comments previously provided to the GAO, in our opinion, amply demonstrate that the basic benefit analysis for Tellico was and remains sound, and that most of the so-called technical flaws in methodology cited in the report do not exist. The state of the forecasting arts has improved since 1968, but the refinement of earlier forecasts would not significantly

change the results, and, in the meantime, the benefits from a virtually completed project are being foregone. The 1968 economic analysis for Tellico was reexamined in 1971 in connection with the NEPA review. All of Volume III of the Tellico EIS is devoted to the benefit-cost analysis. It contains a critical analysis prepared by opponents of the project of both the general approach and the specific dollar value estimates used by TVA in calculating project benefits and TVA's discussion and rebuttal of the major points raised by the critical analysis. In approving TVA's final EIS as adequate under NEPA, the district court was highly complimentary of TVA's economic analysis, saying: "We can scarcely imagine a more satisfactory disclosure than that contained in final statement."

The discussion of specific primary benefits follows:

1. Recreation--On pages 38-39 of the report, GAO notes that TVA calculated the number of recreation visits to Tellico based on an average from other reservoirs. The report then questions the use of average figures which do not take into consideration factors such as water quality, shoreline development, public access, and proximity to population centers. What the report does not say, however, is that each of these factors weigh in favor of the Tellico project. TVA provided the following information which was not included in the report:

[T]he Tellico Reservoir, because of its proximity to the heavily used Smoky

Mountains National Park and the Cherokee National Forest, its relatively small water level fluctuation and good water quality, its scenic natural setting, good transportation access (I-75, U.S. Highways 11 and 411), the extensive development of historical and archaeological sites and attractions along the reservoir, the public control of the shoreline with provision for many points of access, can properly be expected to be one of the more popular recreational reservoirs in the Valley.

TVA also points out that its earlier analyses applied the existing state-of-the-art projection techniques, and while dependent upon professional judgment, produced reasonable results. Independent estimates of Tellico visits by Economic Research Associates in 1971 (1.5 million by 1980 and 2.1 million by 1995) substantiate the general range of recreation visits TVA projected for Tellico.

While criticizing TVA for not making allowances in its estimate for recreation visits that would represent transfer from other reservoirs to Tellico (p. 40), the report fails to incorporate TVA's position which was stated to GAO as follows:

TVA does not consider recreation transfers a problem for the Tellico visitation/benefit analysis because demand for such recreation generally exceeds supply, and the reservoir will be available to relieve pressures on the heavily used national park. According to the most current published information, a supply demand analysis conducted by a private research firm, Midwest Research Institute, for the 1969 Tennessee Statewide Comprehensive Outdoor Recreation Plan, the capacity of existing reservoirs in the southeast Tennessee region will not be nearly sufficient to accommodate the future regional demand for lake-oriented recreation activities. While these research results were not available

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at the time of the 1968 benefit-cost analysis, the results indicate that without this project the potential demand for lake fishing opportunities alone would require an additional 754,000 acres of water by 1980. Even with the project, 738,000 more acres of water would be needed to satisfy fishing demand by 1980 and over 1,000,000 acres by the year 2000. Given a demand situation that far outstrips the capacity of the existing supply, the transfer question is not relevant.

2. Shoreline development--On pages 40-42, GAO questions the estimated value of this benefit on the grounds that (a) 1,000 acres appeared to GAO to be counted in both the shoreline and recreation categories; (b) some navigation benefits may be included in the value of the shoreline benefit; and (c) the sales price of the land in this benefit may improperly include improvements by the buyer. TVA's position on each of these questions was previously provided to GAO as follows:

(a) The 1,000 acres was not double counted:

[T]he recreation benefit does not include visits to a 1,000-acre state park. When the shoreline development and recreation benefits were estimated, discussions were being held with the State of Tennessee concerning their interests in developing a state park on the 1,000 acres of land. Later, at the time the benefit-cost analysis was prepared, the State had still not made a commitment for the park. The Land Branch in computing shoreline development benefits did not include the 1,000 acres because it assumed the land would be reserved for a state park, while the Recreation Branch assumed no state park would be developed. This discrepancy was

corrected in preparing the final analysis by adding the 1,000 acres to the shoreline development benefits.

(b) The navigation benefits claimed by TVA are not part of the shoreline development benefit:

TVA agrees with GAO that the addition of navigability, as well as other project features such as consolidation of land ownership, industrial zoning, creation of a local port authority, etc., enhances land values beyond its value as agricultural land; however, this benefit is captured ONLY under the shoreline development category and is not counted a second time under Navigation. Navigation benefits are based on savings on the shipment of materials and products after the entrepreneur invests capital to produce a product. Future savings in transportation costs over a 50-year period are not capitalized and included in the price an industry is willing to pay for the land. The reason for this is that substantial uncertainty exists as to the size of the actual savings and the ability of the firm to retain them in a competitive market.

(c) The calculated benefit did not claim the value resulting from development investment by the purchaser (or the effects of inflation):

In reality, the schedule of prices used in developing the shoreline benefits was compiled from a market study of comparable areas located on Fort Loudoun and Watts Bar Reservoirs. The schedules reflect prices for raw, undeveloped lands on sales during the respective 18 and 23 years of experience on these two reservoirs, adjusted to constant value price levels to eliminate the effects of inflation.

3. Flood control--GAO questioned the methodology TVA used in calculating this benefit, stating that an incremental analysis would be more appropriate (pp. 42-43). As we informed GAO, TVA considers the flood storage values used for the Tellico analysis appropriate because:

(1) impoundment of the lower Little Tennessee River is considered part of the overall system flood control plan presented to Congress in 1936 pursuant to the requirements of Section 4(j) of the TVA Act; (2) the project is strategically located to provide needed flood protection to the city of Chattanooga, the most vulnerable locality in the Valley; and (3) the interconnecting canal between Fort Loudoun and Tellico Reservoirs provides system flexibility beyond the construction of a single reservoir by allowing the interchange of storage capacity to help control uneven distribution of storm runoff. An example of the project's flood control benefits is illustrated by the flood which occurred in March 1973. This flood was centered over the area downstream from the large tributary area reservoirs and caused damages estimated at about \$35 million at Chattanooga. If the Tellico project had been completed at this time, the damages would have been reduced by approximately \$15 million.

As previously pointed out, the approach used by TVA is consistent with Senate Document No. 97 which contains

... allowances for intangibles which are not reflected in the tangible benefits and economic costs and thus justifies departure from maximization of net benefits. It states in part that "a higher degree of flood protection, particularly in urban areas, than is feasible on the basis of tangible benefits alone may be justified in consideration of the threat to lives, health, and general security posed by larger floods."

4. Navigation--The GAO report (pp. 44-44a) takes issue with the methodology and data base used by TVA in 1968 to calculate this benefit and renews its speculation of double counting of the shoreline and navigation benefit.

The 44 firms selected by TVA for the 1968 economic analysis included some that were actually using water transportation and realizing direct savings from navigation; it also included some firms which had access barge transportation, but at the time of the study had decided to take advantage of water-competitive rail rates. These additional savings related to navigation development were not included in the benefit level derived for Tellico; however, their existence provided the basis for including all 44 firms in the sample. Indeed, this data base tends to underestimate the savings per acre for firms using water transportation. The methodology issue is moot, however, as TVA in 1971 actually performed the specific industry-type analysis GAO prefers. As we reported to GAO:

The analysis selected two different industrial complexes whose growth trends and location requirements indicated they would find Tellico sites suitable to their needs. Tons of bargeable commodities related to each complex were estimated and the results in both cases indicated the transportation savings exceeded the savings derived in 1968 analysis, substantiating its reasonableness. A detailed discussion of this analysis is contained in Volume III of the Tellico EIS (pages III-3-20 to III-3-21).

The second point, the question of the double counting of navigation savings (with shoreline development), has already been

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addressed. The calculated navigation benefit estimates the transportation savings on raw materials and products shipped by water, after the sale of Tellico land and the development of private industrial facilities have been completed. As TVA informed GAO, the calculated shoreline benefit would include the value of these navigation benefits only if the land were sold at a price

. . . that includes the future stream of transportation savings that could be attained by the buyer and retained by him.
 . . . [I]n actuality this price is never paid by industries because of the uncertainty as to the size of the savings and whether competitors will permit their retention; in addition, such an advance payment nullifies the location advantage.

5. Power--While raising some collateral questions on this issue (p. 45), GAO concedes the power benefit. Indeed, the 290 million kilowatt-hours of clean hydroelectric energy that will be produced by Tellico in an average year has a current annual value of about \$3.5 million.

6. Fish and Wildlife--The transfer issue has already been addressed under the recreation heading. GAO also questioned TVA's selection of the nonreservoir fishing value in deriving the calculated benefit (p. 47). We believe the value used was justified and we reaffirm the statement provided to GAO:

[T]he trout fishing value of \$2 used was a midrange value under the Interim Guidelines, which provided a value of \$1 to \$3 for cold water and bass fishing

Supplement No. 1 to Senate Document 97 regrouped all fishing under two headings: lake fishing under General Recreation with a value of \$0.50 to \$1.50, and trout fishing under Specialized Recreation with a value of \$2 to \$6, leaving the selection of value to the professional judgment and discretion of the evaluator. Considering the criteria and examples given for specialized recreation, and the artificiality of the trout fishing situation in the Little Tennessee River (e.g., absolute river flow control which varies with releases from Chilhowee Dam from 1,350 to 11,000 cubic feet per second, maintenance of the trout population by continuous stocking, the proximity of 1,200 miles of natural trout waters in east Tennessee and the seasonal influx of warm water sport fishes, such as sauger and white bass from Watts Bar Reservoir) TVA biologists consider the \$2 per trip value for trout fishing justified. This is supported by a 1964-65 fishing survey of Little Tennessee River fishing, which determined that the average per angler out-of-pocket expense per trip was \$2.41 before netting out expenses of providing the fishing opportunity. In 1964-65, the cost of stocking trout in the Little Tennessee was calculated to be \$58,000. This cost would have reduced the trout fishing benefit calculated and continues to be a substantial annual cost.

6. Water supply--While GAO initially raised two questions on this point, it apparently now acknowledges that the comprehensive land use planning will assure that adequate industrial acreage is available to realize this benefit. The report (at p. 48) still questions the dollar value of the benefit, however. In support of its position, GAO misuses the values in TVA's 1971 analysis, which actually confirms the reasonableness of the originally calculated benefit. As we reported to GAO,

that analysis used 13 industrial plants from different categories that were potential candidates for the Tellico area. For the purpose of the 1971 study, a range of 70 to 150 million gallons per day at different pumping heads were selected (the firms selected for the sample were using an average of about 110 million gallons per day). The corresponding range of average annual benefits derived from the analysis was \$24,000 to 380,000 (in 1968 dollars), which in our view substantiates the reasonableness of TVA's earlier \$70,000 benefit estimate. GAO, however, ignored the differences in the two studies and erroneously compares the 70 million gallons per day water use rate in the two studies to support its position.

Secondary Benefits

The Tellico benefit-cost analysis, prepared in accordance with Senate Document 97, properly included the substantial secondary benefits in the form of new jobs and economic opportunities that the project will create. While the GAO report acknowledged (p. 37) that the enhanced employment opportunities raised the annual benefits from Tellico by \$3,650,000 (in 1968 dollars) and the benefit-cost ratio computed by TVA to 3.0 to 1, the secondary benefits are not discussed further.

TVA believes that these job opportunities are the heart of the project, improving the quality of life in an area now characterized by unemployment, low incomes, and the out-migration of young people. TVA estimates that 4,000 basic

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industrial jobs and 2,600 trades and services jobs will be created along the reservoir over a 25-year development period. By comparison, less than 200 families made a living farming this land before it was acquired for the project.

New jobs are clearly needed. Monroe County, in which about half of the project is located, currently has a per capita income of only 56 percent of the national figure. More than 26 percent of its families have income below the poverty level and its current unemployment rate exceeds 12 percent. The three-county area affected by the project had more than 3,300 people on the unemployment rolls in 1976. Moreover, it should be noted that TVA's estimates of industrial development at Tellico are fully supported by independent consultants' studies performed by The Fantus Company and the Real Estate Research Corporation in 1972.

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ARCHAEOLOGICAL AND HISTORICAL SITES PROPOSED FOR DEVELOPMENT
BY TELlico OPONENTS, WITH TVA'S COMMENTS

<u>Site</u>	<u>Significance</u>	<u>Proposed Development</u>	<u>TVA's Comments</u>
Halfway Town	Cherokee village	Visitor center, museum, stables, picnic area, boatguide service, interpreter.	Location has not been determined by archaeological excavations since the area where it supposedly existed will not be inundated. Therefore, completion or noncompletion of the project will have no effect on any possible development at this site. However, it is probably on land already acquired for the project. TVA plans a recreational area in the vicinity, but will see that no historic remains are destroyed.
Citico	Cherokee village	Canoe access, information display, hitching station.	Late prehistoric mound has been excavated and the associated aspects of the site extensively investigated by UT. Since the work has stopped, pot hunters have destroyed most of the late prehistoric remains of the site. The Cherokee portion of the site has also been vandalized, but to a lesser degree. TVA plans an interpretive center near the site.
*Chota-Tenasee	Cherokee capital village	Reconstructed village, museum, canoe access, horse hitching and watering station, interpreter residence.	TVA has constructed an extensive fill above the original townhouse site and connected it to land above the proposed reservoir pool level by an earth fill and riprap causeway. The site has been readied for a lake setting and a "reconstructed village" on the original ground level would not now be possible without removal of the fill and causeway.
Toqua	Cherokee village and temple mound	Canoe access, picnic area, information display, hitching and watering station.	The referenced "Temple Mound" no longer exists since it was completely excavated to below ground level by UT. This was part of a large prehistoric Indian settlement of the Dallas phase of the Mississippian period, and the surrounding village area was also extensively investigated by UT. Another element of Toqua is a large historic Cherokee village where the locations of two townhouses were identified by UT archaeologists, although only one such public building was indicated on early maps.

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TVA's Comments

Proposed Development

Significance

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Tomotley	Cherokee village-- birthplace of Sequoyah	Partially reconstructed village, canoe access, information displays, and hitching station.	The description as the "birthplace of Sequoyah" is incorrect. Sequoyah was born at Tusculum, the site of which is only generally known despite extensive search and testing. UT archaeologists determined the former location of the townhouse at Tomotley and recovered both Cherokee and prehistoric Dallas material from the site.
Port Loudoun	British Fort	Reconstructed fort, stables, interpreter residence, museum, ferry service, canoe access, picnic area, tent camping.	The original site of Port Loudoun has been raised and the reconstruction planned for a lake setting. It would be unsuitable for public display in its present form and elevation unless surrounded by water.
Tellico Blockhouse	Site of militia blockhouse (1795)	Reconstructed blockhouse, canoe access, hiking, trailhead, ferry service, information displays.	The correct dates for the Blockhouse were 1794-1807. TVA has applied protection to the lower portion in anticipation of impoundment of Tellico Lake. This would be inappropriate without a lake setting. Described as a "Militia blockhouse," Tellico was manned by militia for two years only and thereafter was garrisoned by regular troops of the United States Army. Its significance was not that of a military outpost, but as a part of Secretary of War Henry Knox's factory system of trade with and civilizing of the Indians.
Militia Springs	Local militia mustering grounds (1790's)	Information display, picnic area.	This site is outside the Tellico project area, and completion or noncompletion of the project does not affect it. However, the actual site has been damaged or destroyed by the State's construction of U.S. Highway 411 many years ago, and by the later erection of a branch bank and parking lot.
Mialoque-Ross Island	Cherokee village	Canoe access, picnic area, information displays.	The major portions of the site of the former Cherokee village of Mialoque were destroyed by the Bowlers Southern Paper Company through land planning and other construction activities in connection with its Ross Island nurseries. The principal archaeological importance of the area was the early archaic site excavated by The University of Tennessee on the northern tip of the island from which material dating to 7200 B.C. was recovered.

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Proposed Development

Significance

Site

Bat Creek Mounds	Site of enigmatic stone	Canoe access, information display.	No mounds remain at this site, but a trace of one Woodland burial mound is above pool level. Another burial mound described by Thomas in a Smithsonian publication in the 1880's had been destroyed by digging or cultivation by the time the Tallico project was begun. The third mound, a Dallas Phase Mississippian mound, was fully excavated by UT. TVA plans an interpretive center near the site.
Coyote Springs	Grist mill site	Reconstructed grist mill, picnic area, canoe access, interpreter residence.	Since no mill exists at Coyote Springs and any attempt at a reconstruction might be of questionable authenticity, TVA believes it would be more appropriate to restore the Hopperwell Mill which has been acquired, is partially standing and restorable, and is available for transfer to an interested and responsible historical group.
Stowman House	House and grounds of early Indian agent.	Restored house, interpreter residence, canoe access, picnic area.	This is described as a home of an "early Indian agent." There is no historical record that George Bowman was ever an Indian agent. The house is on the National Register, is owned and has been preserved by TVA, and is available for conveyance to a responsible historical group for restoration.
Bussell Island	Coyote treaty site--burial mounds	Interpreter residence, canoe access, picnic area, museum, tent camp.	This site will be preserved by TVA whether or not Tallico is completed since it is below the dam and will not be inundated. The opponents describe the island as the "Coyote Treaty site." The actual site for the signing of the Coyote Treaty is unknown, however, and there are no burial mounds remaining on Bussell Island. UT investigation has recently identified, in addition to the late Indian occupations previously known, deeply stratified early Indian living floors, dating to 7500 B.C. TVA is currently nominating this site to the National Register of Historic Places.

Additional Comment: The McGhee Mansion which is on the National Register, has been acquired by TVA and will be transferred to the State upon request for development as a part of the historical park complex around Fort Loudoun. Also, the Hopperwell Mill, an early grist mill near the Tallico River, has been acquired by TVA and is available to a responsible historical body for restoration. The same is true of Coyote School, circa 1870.

*To be preserved by TVA if Tallico Project is completed.

TVA SNAIL DARTER
CONSERVATION PROGRAM

SITUATION ASSESSMENT

Population Age Structure and Distribution--
Little Tennessee and Hiwassee Rivers

Prepared By
Division of Forestry, Fisheries, and Wildlife Development

February 1977



TVA has been conducting a comprehensive snail darter conservation program since the summer of 1975. As a part of that program, a great deal of information on the life history of the snail darter (Percina tanasi) both in the Little Tennessee and Hiwassee Rivers has been gathered. Beginning in October 1975, specific studies were undertaken to determine population age structure and relative strength as well as spatial distribution related to age class.

This report describes the snail darter population analysis techniques used and the general conclusions reached about the Little Tennessee River and Hiwassee River populations. In summary, the studies established that:

- (1) The population of snail darters in the Little Tennessee River has declined drastically in the last two years.
- (2) Substantial numbers (>1,000) of young darters have been found in the Watts Bar embayment of the Little Tennessee River.
- (3) The complete snail darter reproduction cycle does not occur in the Little Tennessee River LTRM 0.5 to 17, and this area is no longer accessible to the young snail darters which normally return to the river from Watts Bar Reservoir to complete their life cycle.
- (4) There has been virtually no recruitment of young darters to the Little Tennessee River population in 1976 and only limited recruitment in 1975.
- (5) Successful spawning has occurred in the Hiwassee River and there has been recruitment to the transplanted population. Recent observations confirm that reproductive development is proceeding on schedule in the transplanted adult fish as well as in those fish naturally reproduced in the Hiwassee River.

Based on these findings, we have concluded that the snail darter population in the Little Tennessee River (LTRM 0.5 to 17) cannot survive even if the Tellico Dam is not closed or the river impounded because the designated "critical habitat" does not include all the biological/habitat requirements

necessary to sustain the complete life cycle of the darter, and access to a broader area containing these requirements is no longer available to the population. These essential biological needs are being provided in the Hiwassee River, and, we believe, exist in the Holston River site (below Cherokee Dam).

Background: Methodology and Population Dynamics

The need to monitor changes occurring relative to the size of the Little Tennessee River population was recognized during the development of the conservation plan. A method of measuring relative abundance, which is a function of population size and describes changes occurring in standing stocks, was developed to assess any fluctuations. Relative abundance measurements have been taken in both rivers, three times per season since January 1976. These activities were conducted at six specific sites in the Little Tennessee River and three in the Hiwassee River.

To gain further insight into the dynamics of population size, age and growth data were taken from 741 fish over the year and analyzed using the Harding length frequency method. This information allowed evaluation of the population age structure and enabled us to correlate fluctuations in relative abundance with fluctuations in year class strength.

We recognized that apparent fluctuations in year class strength can result from differences in spatial distribution as influenced by differing habitat requirements. For this reason and the need for general species distribution information, investigations were conducted throughout and beyond the expected range in both the Little Tennessee and Hiwassee Rivers.

Based on information gathered during these activities, certain relevant conclusions can be drawn concerning the life history of the species.

(1) The snail darter spawns in the late winter through early spring. After a period of incubation the eggs hatch and the larvae swim up into the water column and drift downstream in the current to deeper, slow-moving water. The slow current and resultant warmer temperatures promote zooplankton production which is utilized by the post-larval darters as a food source. Upon reaching 35 to 45 mm in length, the fish convert to snails and other macroinvertebrates in their food habits and of necessity move back into the flowing water habitat which produces more of these organisms.

(2) The expected pattern of population fluctuation over a year's period would find the lowest levels occurring in late summer followed by an increase to peak levels in late winter or early spring and then a decline to the late summer population. This theorized norm results from a gradual mortality of the 3+ year class (age analysis shows that individual snail darters do not live beyond 3-1/2 years) following spawning followed by recruitment of juveniles returning in the fall from the deep, slow-moving pools.

Findings

The studies indicate that, while fluctuations in snail darter population size occur, the total population of snail darters in the Little Tennessee River has sharply declined since our population studies began. There has been virtually no recruitment of young snail darters to the population in 1975 and 1976; whereas, in the Hiwassee, recruitment of juveniles, observed both downstream in the slower pool areas (outside

established sampling stations) and in the lower transplant areas, is expected to provide a basis for population increase.

During the course of the investigations on the Little Tennessee River population, length measurements were taken from 741 snail darters to determine the structure of the population with regard to age group representation. Initially, during the fall of 1975, three age groups were represented: young-of-the-year (1975 year class), 1+ (1974 year class), and 2+ (1973 year class). The majority fell in the 1+ group and only one individual was collected from the young-of-the-year or 0+ age group (Figure 1).

Over the next 12 months and following the 1976 spawning season, the 1973 year class completely disappeared from the population. Further, no additional specimens of the 1975 year class were collected (Figures 2 and 3). From this information, coupled with limited age data from scale analysis, we concluded that individual snail darters do not live beyond approximately 3-1/2 years. Since only one specimen of the 1975 year class was sampled, it appeared that they comprised an insignificant percentage of the total population in the Little Tennessee River, and their subsequent disappearance from the samples could reasonably be attributed to natural mortality of an already limited stock.

In the Hiwassee, population age structure was known from the start as all fish transplanted were measured prior to release in late 1975 and early 1976. Specifically, 14 percent were of the 1973 year class (2+ age group) with the remainder represented by the 1974 year class (1+ age group).

Concurrently with the population age structure investigation, determinations of the species spatial distribution were made, both to document

its range and to identify any variations in distribution among age groups. During these investigations we located the large numbers of young snail darters (1975 year class and subsequently 1976 year class) congregated in Watts Bar Reservoir below Tellico Dam. This congregation has been observed during every investigation since December 1975. The situation, from the outset, indicated to us that the young fish below Tellico Dam represented those fish which were absent in the Little Tennessee River above the dam. This assessment was further strengthened by the discovery in late summer of 1976 of young-of-the-year (1976 year class) snail darters in the deep, slow-moving areas of the Hiwassee River below the shoals that had received the transplants. Discovery of reproduction was expected since the transplanted adults had been observed to be in spawning condition during the winter of 1975-76 and subsequent examination revealed them to have spent their reproductive products. These young fish produced by the transplanted adults now have attained (February 1977) sexual maturity and are expected to spawn along with the older fish during the impending spawning season.

The observations from the two populations indicate that the species' reproductive processes require swift-flowing waters over shoal areas for spawning and deep, slow-moving areas for development of the young fish; whereupon, at some point prior to the next spawning season, they return to the shoal areas.

Applying this analysis to the present situation observed in the Little Tennessee River and Watts Bar Reservoir, it explains why recruitment necessary to sustain this population has not occurred in the Little Tennessee River for the past two years and indicates that recruitment of the young fish below Tellico Dam to the river population will not occur naturally

in the future due to the physical barrier presented by Tellico Dam. Since (1) those fish now present in the Little Tennessee River are represented virtually entirely by the 1974 year class (2+ age group), which will suffer complete natural mortality following spawning season this year (1977); (2) reproduction from these fish will drift through Tellico Dam to their required nursery area in the deeper waters of Watts Bar Reservoir; and (3) the young fish, once having completed the nursery period, are unable to return to the river itself, the prognosis must be that the natural Little Tennessee River population will be essentially extirpated before the end of 1977. Conversely, as the young snail darters in the Hiwassee have free access to the swifter waters, and have indeed moved into these areas, we expect that population to continue to prosper.

Data providing the basis for the situation assessment presented in this document, as well as the analysis itself, have been transmitted to the USFWS and TWRA in biweekly progress reports throughout the course of the conservation program. In addition, the situation was discussed in detail during the November 10, 1976, consultation meeting among biologists representing the three agencies. All agreed that TVA's analysis of the Little Tennessee River situation probably described the actual case.

The 16.5-mile stretch of the Little Tennessee River above Tellico Dam does not contain a suitable nursery area critical to the development of post-larval snail darters and, hence, that section of the river is not capable of sustaining a viable, natural population of snail darters. From a biological perspective, Little Tennessee River miles 0.5 to 17 cannot be considered to be the critical habitat of this species.

Additional Habitat

TVA biological crews have surveyed a large number of area streams to find other areas with suitable habitat to establish additional populations of snail darters. Of the ten candidate sites considered acceptable, the Holston River below Cherokee Dam was selected as the best site in consultation with the Fish and Wildlife Service and the Tennessee Wildlife Resources Agency on September 29, 1976, and was the basis for TVA's November 12, 1976, application for a permit under Section 10 of the Endangered Species Act.

The lower section of the Holston has extensive shoal areas with sand and gravel substrate predominant, and populations of aquatic snails (including Physa) are found in this area. While certain water quality parameters are somewhat different from those of the Little Tennessee River (especially Ca and Cl), the differences are not considered critical. Water temperature and siltation compared favorably to those conditions in the Little Tennessee. Several large river species of fish along with three species of darters (also found in the lower Little Tennessee River) are found in this lower section of the Holston River. Overall, this area appears to be capable of satisfying the snail darter's basic biological needs and provides suitable habitat for an additional population to be established.

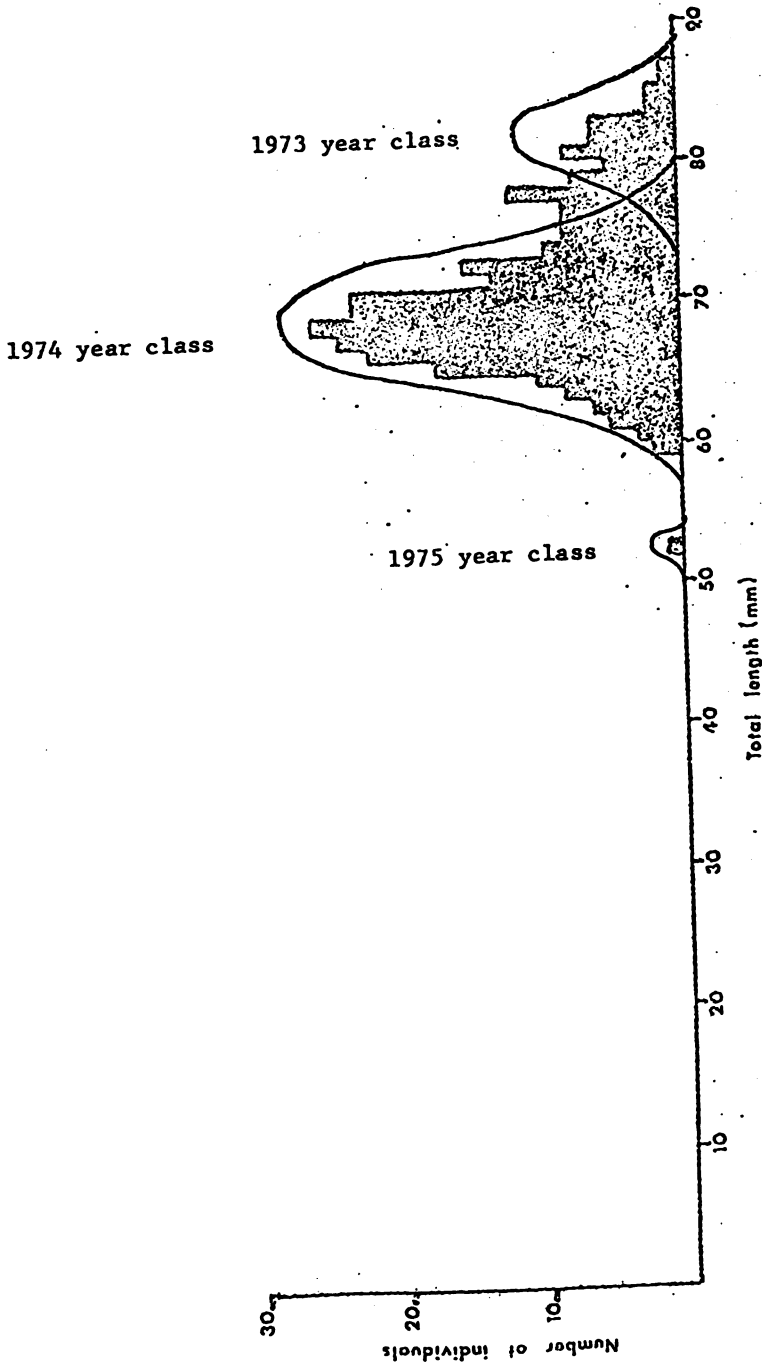


Figure 1 Length frequency of snail darters collected from the Coyote Spring area during October-November-December, 1975 (N=280).

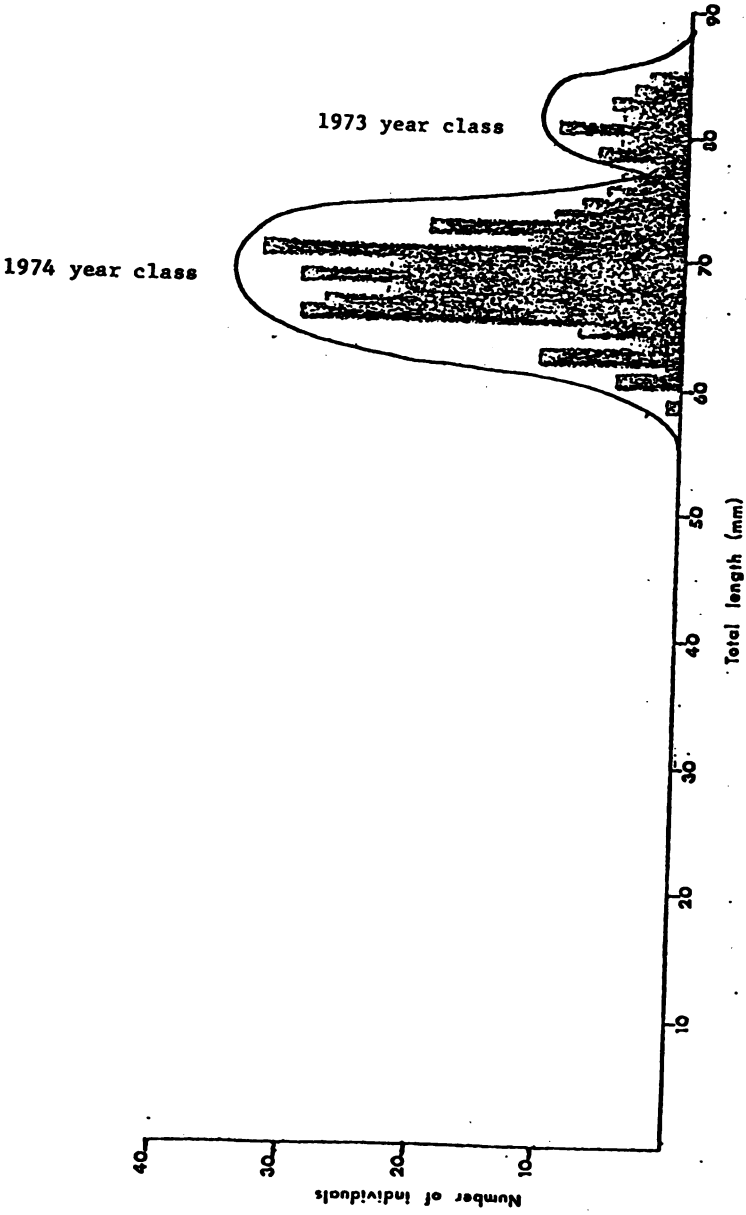


Figure 2 Length frequency of snail darters collected from the Coyote Spring area during February, 1976 (N=302).

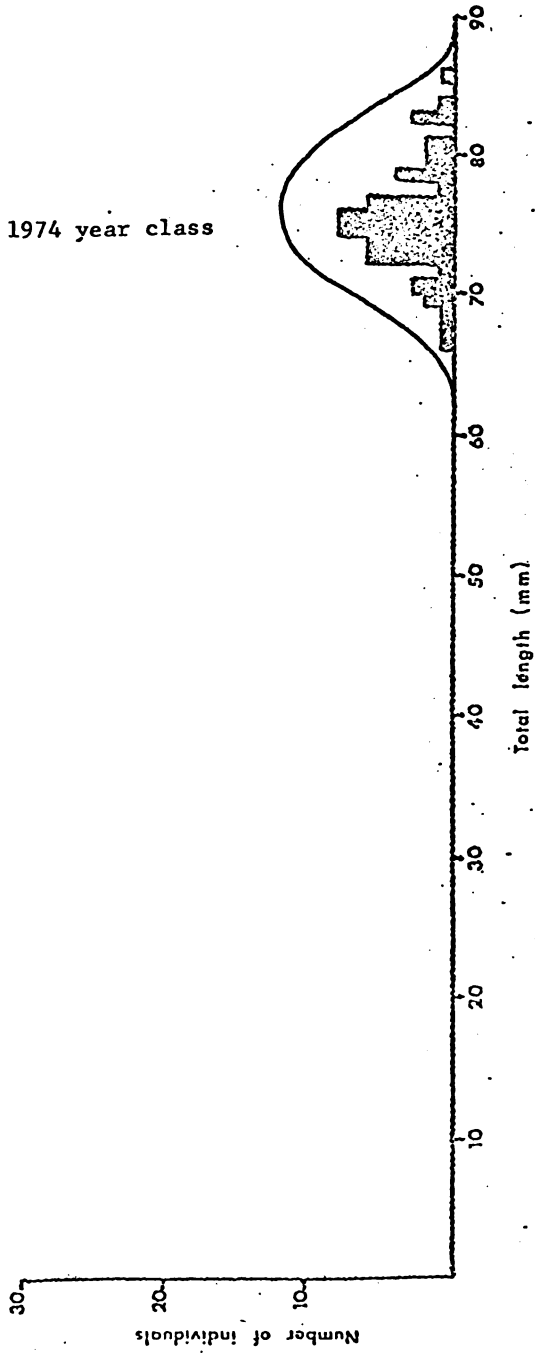


Figure 3 Length frequency of snail darters collected from the Coyote Spring area during October, 1976 (N=57).